Journal of the
American Water Works Association

Vol. 37 March 1945 No. 3

Two Parts—Part 2

INDEX TO THE JOURNAL

of the

AMERICAN WATER WORKS ASSOCIATION

1940—1944

One Dollar Per Copy

AMERICAN WATER WORKS ASSOCIATION
Incorporated
500 Fifth Avenue, New York 18, N.Y.

COPYRIGHT, 1945
BY
AMERICAN WATER WORKS ASSOCIATION

Made in the United States of America

Initially distributed without charge to all members of the American Water Works Association

COMPOSED AND PRINTED AT THE
LANCASTER PRESS, INC.
LANCASTER, PA.

CONTENTS

Guide to Subject Index, With Cross References 1

Key to Volume Numbers 6

Subject Index 7

Author Index 49

Subject Index—Topics 57

1881–1939 INDEX TO THE PROCEEDINGS, JOURNAL AND OTHER PUBLICATIONS. This index covers 59 years of A.W.W.A. publications: the Proceedings for 1881 through 1913; the Journal for 1914 through 1939; and other Association publications. Price to A.W.W.A. Members, $1.75; to A.W.W.A. Members who send cash with order, $1.50; to non-members, $2.00.

HOW TO USE THE SUBJECT INDEX

Topics under which papers are listed are printed in CAPITALS. Cross references are printed in Small Letters.

In many instances papers in the JOURNAL cover not one but many topics and have not been listed in this Index under all the topics which they cover but under the general heading found to be most fitting. For example, a paper may cover Odor Removal, Sterilization and several other topics pertaining to water treatment and may be found in this Index under the topic "TREATMENT AND TREATMENT PLANTS" but not necessarily under the topics "ACTIVATED CARBON," "STERILIZATION," etc. When looking for references under topics which have been subdivided such as PIPE, PUMPING AND PUMPING STATIONS, TREATMENT AND TREATMENT PLANTS, etc., it is best to look under the heading of general articles on that topic as well as under the subdivision of that topic covering the subject on which search is being made.

See page 6 for key to volume numbers.

GUIDE TO TOPICS IN SUBJECT INDEX, WITH CROSS REFERENCES

ASSOCIATION TOPICS

A.W.W.A.—AUDIT OF ASSOCIATION FUNDS AND REPORT OF SECRETARY 7
" —CONSTITUTIONS 7
" —GENERAL 7
" —REPORTS OF COMMITTEES 7

TECHNICAL TOPICS

ACCOUNTING AND RECORDS 9
ACTIVATED CARBON 9
AMMONIA CHLORINE 9
ANALYSIS OF WATER—GENERAL 10
" " " —BACTERIOLOGICAL 10
" " " —CHEMICAL 10
" " " —PHYSICAL/MICROSCOPIC 12

Aquatic Growths. See Control and Removal of Aquatic Growths, Tastes and Odors. See also Quality of Water—Aquatic Growths, Fish Life

Asbestos. See Pipe—Asbestos-Cement, Concrete

Assessments. See Rates, Assessments and Financing

Backfill. See Pipe Laying, Excavation and Backfill

Bacteria/Amoeba. See Quality of Water—Bacteria/Amoeba

BOILER FEEDWATER 12

Cast-Iron Pipe. See Pipe—Cast-Iron

Cement Pipe. See Pipe—Asbestos-Cement, Concrete

Chemical Quality. See Quality of Water—Chemical and Physical

CHEMICALS, COAGULATION, MIXING AND SEDIMENTATION .. 12

Chlorination. See Sterilization, Chlorination, Excess Lime, Ozone, Ultra-Violet Ray

CIVILIAN DEFENSE—MUTUAL AID 12

Clear Water Storage. See Reservoirs—Clear Water, Distribution

Coagulation. See Chemicals, Coagulation, Mixing and Sedimentation

Concrete Pipe. See Pipe—Asbestos-Cement, Concrete

Conservation. See Consumption, Conservation, Waste and Leakage

COLOR REMOVAL 15
CONDUITS AND TUNNELS 15
CONSUMPTION, CONSERVATION, WASTE AND LEAKAGE ... 15
CONTROL AND REMOVAL OF AQUATIC GROWTHS, TASTES AND ODORS 16

Copper Sulfate. See Sterilization and/or Control and Removal of Aquatic Growths

CORROSION (EXTERNAL), ELECTROLYSIS, GROUNDING OF ELECTRICAL LINES 16
CORROSION (INTERNAL), PIPELINE FRICTION, MAIN CLEANING 16
CORROSION PREVENTION 17
COSTS—STATISTICS OF WATER WORKS 18
CROSS-CONNECTIONS 18

Damages. See Legal Decisions, Damages, etc.

DAMS 18

Distribution. See Reservoirs—Clear Water, Distribution

DISTRIBUTION SYSTEMS 18

Droughts. See Hydrology, Floods, Flood Control, Water Resources, Droughts, Irrigation

EDUCATION, LICENSING AND TRAINING 20

Excess Lime. See Sterilization, etc.
Electrolysis. See Corrosion (External), Electrolysis, Grounding of Electrical Lines
Excavation. See Pipe Laying, Excavation and Backfill

FILTRATION 20
FIRES, FIRE PREVENTION AND PROTECTION 21

Financing. See Rates, Assessments and Financing
Fish Life. See Quality of Water—Aquatic Growths, Fish Life
Flood Control. See Hydrology, Floods, Flood Control, Water Resources, Droughts, Irrigation

GROUND WATER—GEOLOGY 21

Grounding. See Corrosion (External), Electrolysis, Grounding of Electrical Lines

HEALTH 22

Hose. See Hydrants
Hot Water Heaters. See Plumbing, Plumbing Hazards, Hot Water Heaters, Refrigerators

HYDRANTS 22
HYDRAULICS 22
HYDROLOGY, FLOODS, FLOOD CONTROL, WATER RESOURCES, DROUGHTS, IRRIGATION 23

Impounding. See Reservoirs—Impounding
Industrial Water Supply. See Supply—Industrial

INTAKES 23

Ion Exchange. See Zeolites/Ion Exchange
Irrigation. See Hydrology, Floods, Flood Control, Water Resources, Droughts, Irrigation

IRON AND MANGANESE REMOVAL 23

Leakage. See Consumption, Conservation, Waste and Leakage
Licensing. See Education, Licensing and Training

LEGAL DECISIONS, DAMAGES, ETC. 24

Main Cleaning. See Corrosion (Internal), Pipeline Friction, Main Cleaning

MANAGEMENT, ADMINISTRATIVE PRACTICES, COMMERCIAL PRACTICES AND PERSONNEL ADMINISTRATION 24

Manganese Removal. See Iron and Manganese Removal
Manpower. See War Manpower

METERS 27

Military Water Supply. See Supply—Military
Mixing. See Chemicals, Coagulation, Mixing and Sedimentation
Mutual Aid. See Civilian Defense—Mutual Aid
Odors. See Control and Removal of Aquatic Growths, Tastes and Odors—See also Quality of Water—Tastes and Odors
Ozone. See Sterilization, etc.

PAINTS, PAINTING MATERIALS, PROTECTION 28

Personnel Administration. See Management—Personnel Administration
Physical Quality of Water. See Quality of Water—Chemical and Physical

PIPE—ASBESTOS-CEMENT, CONCRETE 28
" —CAST-IRON 28
" —GENERAL 28
" —SERVICE 28
" —STEEL AND WROUGHT-IRON 29
PIPE COATING AND LINING 29
PIPE LAYING, EXCAVATION AND BACKFILL 30

Pipeline Friction. See Corrosion (Internal), Pipeline Friction, Main Cleaning

PLUMBING, PLUMBING HAZARDS, HOT WATER HEATERS, REFRIGERATORS 30
POSTWAR PLANNING 31
POWER AND PUMPING 31
PUBLIC RELATIONS 32

Pumping. See Power and Pumping

PUMPING STATIONS 33
QUALITY STANDARDS 33
QUALITY OF WATER—AQUATIC GROWTHS, FISH LIFE 34
" " " —**BACTERIA/AMOEBA** 34
" " " —**CHEMICAL AND PHYSICAL** 35
" " " —**POLLUTION, PROTECTION AND CONTROL** 35
" " " —**TASTES AND ODORS** 36
RADIO COMMUNICATION 36
RATES, ASSESSMENTS AND FINANCING 36
RECARBONATION WITH SOFTENING 37

Refrigerators. See Plumbing, Plumbing Hazards, Hot Water Heaters, Refrigerators

REGULATION OF PUBLIC UTILITIES 37
RESERVOIRS—CLEAR WATER, DISTRIBUTION 37
" —**IMPOUNDING** 38

Rights. See Water Rights

SAFETY PRACTICES 38

Sedimentation. See Chemicals, Coagulation, Mixing and Sedimentation
Service. See Pipe—Service
Sewage. See Sewerage, Sewage and Waste Disposal

SEWERAGE, SEWAGE AND WASTE DISPOSAL 38
SOFTENING 38
SPECIFICATIONS AND STANDARDS 39
STANDPIPES AND TANKS 40

Statistics. See Costs—Statistics of Water Works
Steel Pipe. See Pipe—Steel and Wrought-Iron

STERILIZATION—CHLORINATION, EXCESS LIME, OZONE, ULTRA-VIOLET RAY, COPPER SULFATE 40

SUPPLY—GENERAL 41
" —**INDUSTRIAL** 42
" —**MILITARY** 42
SWIMMING POOLS 43

Tanks. See Standpipes and Tanks

Taste. See Control and Removal of Aquatic Growths, Tastes and Odors—See also Quality of Water—Tastes and Odors

TAXATION 43

Training. See Education, Licensing and Training

TREATMENT AND TREATMENT PLANTS 43

Tunnels. See Conduits and Tunnels

Ultra-Violet Ray. See Sterilization—Chlorination, Excess Lime, Ozone, Ultra-Violet Ray, Copper Sulfate

VALVES 43
WAR MANPOWER 44
WAR PRODUCTION BOARD 44

Waste. See Consumption, Conservation, Waste and Leakage

Waste Disposal. See Sewerage, Sewage and Waste Disposal

Water Resources. See Hydrology, Floods, Flood Control, Water Resources, Droughts, Irrigation

WATER RIGHTS 47
WATERSHEDS 47
WELLS AND WELL PUMPS 47

Wrought-Iron Pipe. See Pipe—Steel and Wrought-Iron

ZEOLITES/ION EXCHANGE 48

KEY TO VOLUME NUMBERS

The American Water Works Association issued only an annual publication known as PROCEEDINGS from 1881 to 1913, inclusive. Beginning in 1914 the Association has published the JOURNAL, first a quarterly, and, since 1924, a monthly.

Year	*Volume Number*	*Number of Issues*	*Year*	*Volume Number*	*Number of Issues*
1914	1	4	1928	19	6
1915	2	4	1928	20	6
1916	3	4	1929	21	12
1917	4	4	1930	22	12
1918	5	4	1931	23	12
1919	6	4	1932	24	12
1920	7	6	1933	25	12
1921	8	6	1934	26	12
1922	9	6	1935	27	12
1923	10	6	1936	28	12
1924	11	4	1937	29	12
1924	12	4	1938	30	12
1925	13	6	1939	31	12
1925	14	6	1940	32	12
1926	15	6	1941	33	12
1926	16	6	1942	34	12
1927	17	6	1943	35	12
1927	18	6	1944	36	12

SUBJECT INDEX

A.W.W.A.——AUDIT OF ASSOCIATION FUNDS AND REPORT OF SECRETARY

	Mo.	Yr.	Vol.	Page
For Year Ending December 31, 1939	Mar	1940	**32**	516
For Year Ending December 31, 1940	Apr	1941	**33**	774
For Year Ending December 31, 1941	Mar	1942	**34**	426
For Year Ending December 31, 1942	Mar	1943	**35**	338
For Year Ending December 31, 1943	Mar	1944	**36**	359

A.W.W.A.—CONSTITUTIONS

A.W.W.A. Constitution and By-Laws	Jul	1940	**32**	
				Supplement
A.W.W.A. Constitution and By-Laws	Jun	1942	**34**	
				Part 2
A.W.W.A. Constitution and By-Laws (With Proposed Amendments)	Aug	1943	**35**	1101
Erratum	Nov	1944	**36**	1241
A.W.W.A. Constitution and By-Laws	Oct	1944	**36**	
				Part 2
Erratum	Nov	1944	**36**	1241

A.W.W.A.—GENERAL

The 1940 Convention	Dec	1940	**32**	2099
Résumé of 1940 Section Meetings	Dec	1940	**32**	2111
The 1941 Convention	Dec	1941	**33**	2227
Résumé of 1941 Section Meetings	Dec	1941	**33**	2237
A Platform for the A.W.W.A. for the Coming Year—Abel Wolman	Jul	1942	**34**	979
A.W.W.A. Objectives—1942	Sep	1942	**34**	1295
The 1942 Conference	Dec	1942	**34**	1927
Papers Scheduled at 1942 Section Meetings	Dec	1942	**34**	1937
The 1943 Conference	Dec	1943	**35**	1610
Papers Scheduled at 1943 Section Meetings	Dec	1943	**35**	1619
1944 Conference—Milwaukee	Dec	1944	**36**	1384
Papers Scheduled at 1944 Section Meetings	Dec	1944	**36**	1393
Guide for Preparation of Journal Manuscripts With a List of Standard Abbreviations	Jan	1942	**34**	161

A.W.W.A.—REPORTS OF COMMITTEES

Recommended Practice for Distribution System Records—W. Victor Weir, Chairman	Feb	1940	**32**	181
Water Works Practice—Malcolm Pirnie, Chairman	Mar	1940	**32**	502
Water Works Practice—Malcolm Pirnie, Chairman	Feb	1941	**33**	343
Meter Settings. Indiana Section Committee Report—T. E. Milligan, Chairman	Oct	1941	**33**	1666

A.W.W.A.—REPORTS OF COMMITTEES (Con.)

Current Activities of the Steel Pipe Committee.....W. W. Hurlbut	Oct	1941	**33**	1716
Joint Administration and Collection of Water and Sewer Accounts Leonard N. Thompson, Chairman	Nov	1941	**33**	1911
Discussion.....John A. Hickey	Nov	1941	**33**	1923
Discussion.....Hal F. Smith	Nov	1941	**33**	1926
Methods of Water Treatment and Laboratory Control George D. Norcom, Chairman	Nov	1941	**33**	2051
Comments on Committee Report on Methods of Determining Fluorides Elias Elvove and R. F. Goudey	Dec	1941	**33**	2210
Cross-Connection Control.....E. Sherman Chase, Chairman	Jan	1942	**34**	17
Progress Report. American Research Committee on Grounding.....	Jan	1942	**34**	69
Graphical Symbols for Use on Drawings.....	Feb	1942	**34**	313
Water Works Practice.....Malcolm Pirnie, Chairman	Mar	1942	**34**	412
Tentative Manual of Safe Practice in Water Distribution—7J.1-T....	Jun	1942	**34**	915
Progress Report No. 1. Survival and Retirement Experience With Water Works Facilities..E. H. Aldrich, Supervising Co-ordinator	Oct	1942	**34**	1585
Control of Chlorination. Progress Report..C. K. Calvert, Chairman	Dec	1942	**34**	1782
Sodium Hexametaphosphate in the Control of Corrosion in Water Systems.....E. W. Moore, Chairman	Dec	1942	**34**	1807
Emergency Alternate Provisions for Tentative Specifications for Cold Water Meters—Displacement Type—7M.1-T.....	Dec	1942	**34**	1914
Revisions in Standard Specifications for Elevated Steel Water Tanks, Standpipes and Reservoirs.....	Dec	1942	**34**	1915
Water Works Practice.....Malcolm Pirnie, Chairman	Mar	1943	**35**	320
Publication.....Linn H. Enslow, Chairman	Mar	1943	**35**	329
Progress Report. American Research Committee on Grounding H. S. Warren, Chairman	Mar	1943	**35**	333
Modifications of A.W.W.A.-N.E.W.W.A. Standard Specifications for Gate Valves for Ordinary Water Works Service by WPB Order L-252.....	Mar	1943	**35**	413
Modifications of A.W.W.A.-N.E.W.W.A. Standard Specifications for Fire Hydrants for Ordinary Water Works Service by WPB Order L-39.....	Mar	1943	**35**	418
Tentative Standard Specifications for Filtering Material—5C-T.....	Apr	1943	**35**	455
Tentative Revisions of Standard Specifications for Steel Water Pipe of Sizes up to but Not Including 30 Inches—7A.4-1941-TR.....	Apr	1943	**35**	471
Tentative Emergency Specifications for Reinforced Concrete Pressure Pipe—7B-T.....	Apr	1943	**35**	499
Erratum.....	May	1943	**35**	596
Tentative Manual of Zeolite Test Procedures—5Z-T.....	Jun	1943	**35**	721
A.W.W.A. Tentative Recommended Practice—Repainting Elevated Steel Tanks and Water Storage Tanks—7H.2T.....	Jul	1943	**35**	933
A.W.W.A. Tentative Standardization Procedure.....	Aug	1943	**35**	1097
Emergency Alternate Provisions to A.W.W.A. Steel Pipe Specifications	Sep	1943	**35**	1238
Control of Chlorination.....C. K. Calvert, Chairman	Oct	1943	**35**	1315
A.W.W.A. Emergency Alternate Provisions for Thicknesses of Steel Pipe	Oct	1943	**35**	1388
Current Activities of the A.W.W.A. Steel Water Pipe.....	Oct	1943	**35**	1391
Water Works Practice.....Malcolm Pirnie, Chairman	Feb	1944	**36**	201
Publication.....Linn H. Enslow, Chairman	Feb	1944	**36**	210

ACCOUNTING AND RECORDS

Recommended Practice for Distribution System Records	Committee Report	Feb	1940	**32**	181
Economies in Office Forms	Israel Rafkind	Feb	1940	**32**	221
Co-ordinating Operating System Records With Accounting Records	Nathan B. Jacobs	Feb	1940	**32**	225
Water Department Records and Legal Operation	W. G. Irving	Feb	1940	**32**	242
Improvement Requirements and Department Records	C. P. Harnish and J. W. Ford	Feb	1940	**32**	247
Department Records for Supply and Distribution	Howard A. Harris Jr.	Feb	1940	**32**	255
Treatment Records and Their Value	Carl M. Hoskinson	Feb	1940	**32**	259
Public Relations and Department Records	H. Buford Fisher	Feb	1940	**32**	265
Annual Report of a Small Water Works	L. E. Jarvis	Jul	1940	**32**	1101
Financing and Accounting of Denver's Water System	George F. Hughes	Oct	1941	**33**	1648
Joint Administration and Collection of Water and Sewer Accounts	Committee Report	Nov	1941	**33**	1911
Discussion	John A. Hickey	Nov	1941	**33**	1923
Discussion	Hal F. Smith	Nov	1941	**33**	1926
Billing Procedure for a Group of Small Plants	William H. Ogden	Dec	1941	**33**	2201
Accounting Organization of the North Jersey Water District	M. M. McLaughlin	Mar	1942	**34**	383
Discussion	J. E. Garratt	Mar	1942	**34**	388
Cost Accounting for Water Utilities	R. M. Sedgwick	Apr	1942	**34**	564
Relation Between the Water Plant Superintendent and the Accountant	Otto K. Jensen	Jun	1942	**34**	849
Survey of Billing and Collection Practices of Cities of 100,000–200,000 Population	George F. Hughes	Oct	1942	**34**	1527
How the Examiner Looks at the Water Works	Frank B. Thomas	Oct	1942	**34**	1533
An Operator's Monthly Balance Sheet	Charles E. Moore	Dec	1942	**34**	1880
Water Works Accounting Practices in Canada	C. W. Eastwood	May	1943	**35**	562
Bank Payment of Water Bills		Mar	1944	**36**	357
Municipal Depreciation Accounting Practices	N. T. Veatch	Aug	1944	**36**	811

ACTIVATED CARBON

Use of Granular Activated Carbon at Bay City	Louis B. Harrison	Apr	1940	**32**	593
Discussion	A. S. Behrman	Apr	1940	**32**	606
Use of Activated Carbon in Purification Plants	O. J. Ripple	Apr	1940	**32**	609
Handling and Feeding Activated Carbon at Detroit	Newton Powers	Apr	1940	**32**	621
Developments in Taste and Odor Control	Henry F. Laughlin	Jul	1940	**32**	1191
The Extent of Use of Activated Carbon. A Review of the U.S.P.H.S. Survey	E. A. Sigworth	Dec	1943	**35**	1587

AMMONIA CHLORINE

Effect of Ammonia on the Germicidal Efficiency of Chlorine in Neutral Solutions	George R. Weber, Richard Bender and Max Levine	Nov	1940	**32**	1904
Chlorine-Ammonia Treatment of Water	Committee Report	Dec	1941	**33**	2079
Some Chemical Aspects of the Ammonia-Chlorine Treatment of Water	W. Allan Moore, Stephen Megregian and C. C. Ruchhoft	Oct	1943	**35**	1329

AMMONIA CHLORINE (Con.)

Discussion....C. K. Calvert Oct 1943 **35** 1340
Discussion....Harry A. Faber Oct 1943 **35** 1341
Authors' Closure.... Oct 1943 **35** 1342

ANALYSIS OF WATER—GENERAL
(See also QUALITY)

Centralized Laboratory Control for a Group of Privately Operated Water Supplies....John S. Kneale Apr 1940 **32** 654
Water Treatment and Laboratory Control....Committee Report Sep 1940 **32** 1507
The Water Analysis Laboratory of the Public Works Ministry of Venezuela....J. M. Sanchis Feb 1941 **33** 277
Mobile Laboratory Units of the Ohio River Pollution Survey F. E. DeMartini Apr 1941 **33** 636
Oregon Mobile Laboratory....Carl E. Green Apr 1941 **33** 644
Critical Appraisal of Experimental Work....John F. Norton Sep 1941 **33** 1497
Traveling Laboratory Control of Bottlers' Operation....Bert Wells Jul 1942 **34** 1035
Rapid Tests of Water Quality....F. W. Gilcreas Sep 1943 **35** 1201

ANALYSIS OF WATER—BACTERIOLOGICAL

A Study of Procedures for Detection of Coliform Organisms in Minnesota Drinking Water....Dean M. Taylor Jan 1940 **32** 98
Calculating Most Probable Numbers in Coli-Aerogenes Analyses Richard Pomeroy Mar 1940 **32** 478
Induced Slow Lactose Fermentation in *Escherichia coli* Mary E. Caldwell Apr 1940 **32** 659
Relative Value of 2 Per Cent and 5 Per Cent Brilliant Green Bile Confirmatory Media....Dale Richey Apr 1941 **33** 649
Bacteriological Quality of Water From Small Filtration Plants Treating Surface Waters....Herbert Bosch and Abel Wolman May 1941 **33** 913
Isolation of an Aerobic Sporulating Lactose-Fermenting Organism From Philadelphia Drinking Water....George M. Eisenberg Mar 1942 **34** 365
Bacterial Densities From Fermentation Tube Tests Harold A. Thomas Jr. Apr 1942 **34** 572
Evaluation of Coliform Organisms in Water....F. R. Georgia Apr 1942 **34** 577
Discussion....Ralph E. Noble Apr 1942 **34** 583
Concentrating Filter for Large Water Samples Bruce R. Ford and Millard F. Gunderson Apr 1942 **34** 585
A Consolidated Coliometer for Streamlined Water Bacteriology A. A. Hirsch Dec 1944 **36** 1365

ANALYSIS OF WATER—CHEMICAL

A Motorized Apparatus for the Rapid Determination of Calcium and Magnesium in Water....Wilfred F. Langelier Feb 1940 **32** 279
Determination of Small Amounts of Cyanide in Water...J. E. Fasken Mar 1940 **32** 487
Determination of Minute Amounts of Phenol in Water Containing Sodium Sulfides....L. S. Renzoni Jun 1940 **32** 1038
Discussion....Douglas Feben Jun 1940 **32** 1042
Concentrator for Solids in Filter Effluent....Herman Weigand Sep 1940 **32** 1528
A Rapid Method for the Determination of Zinc in Water Supplies Merrill L. Riehl Feb 1941 **33** 246

ANALYSIS OF WATER—CHEMICAL (Con.)

Corrosion Experience at Richardton, N. D. ..... Lloyd K. Clark Feb 1941 **33** 293
Corrosion Experience at Orange, Va. ..... R. L. Blankenship Feb 1941 **33** 299
Racine Method of Residual Chlorine Determination
John J. McCarthy Apr 1941 **33** 659
Measuring Low Sulfide Concentrations ..... Richard Pomeroy May 1941 **33** 943
Investigation of Canadian Water Supplies ..... Harald A. Leverin May 1941 **33** 967
Nomograph for Determining Dissolved Oxygen Concentration in Water ..... W. D. Hatfield Jun 1941 **33** 1111
Determination of Nitrates in Water by Modification of the Phenol-disulfonic Acid Method ..... T. C. Hoppe Sep 1941 **33** 1589
Methods of Determining Fluorides ..... Committee Report Nov 1941 **33** 1965
Modification of the Fluoride Determination ..... R. D. Scott Nov 1941 **33** 2018
Comments on Committee Report on Methods of Determining Fluorides
Elias Elvove and R. F. Goudey Dec 1941 **33** 2210
Graphical Methods for Indicating the Mineral Character of Natural Waters ..... Wilfred F. Langelier and Harvey F. Ludwig Mar 1942 **34** 335
Modification of the Fluoride Determination-Addendum ... R. D. Scott Apr 1942 **34** 522
Chlorine Consumed Tests for Pollution ..... Harry A. Faber May 1942 **34** 746
Present Status of Tests for Organic Pollution Loads
A. M. Buswell and E. C. Dunlop Jul 1942 **34** 1063
A New Method of Determining Residual Chlorine
H. C. Marks and J. R. Glass Aug 1942 **34** 1227
Chromium—A Water and Sewage Problem ..... D. W. Graham Feb 1943 **35** 159
Preservation of Phenol Content in Polluted River Water Samples Previous to Analysis
M. B. Ettinger, Stuart Schott and C. C. Ruchhoft Mar 1943 **35** 299
Use of *p*-Aminodimethylaniline as an Indicator for Free Chlorine
W. Allan Moore Apr 1943 **35** 427
Estimation of High Chlorine Residuals
A. E. Griffin and N. S. Chamberlin May 1943 **35** 571
Determination of the Phenols Contents of Surface Waters .. R. D. Scott May 1943 **35** 592
Scalar Diagram for pH of Calcium Carbonate Equilibrium
A. A. Hirsch May 1943 **35** 594
Erratum ..... Jul 1943 **35** 910
Colorimetric Determination of Chlorine Residuals up to 10 ppm. With Ortho-tolidine—Part I ..... N. S. Chamberlin and J. R. Glass Aug 1943 **35** 1065
Colorimetric Determination of Chlorine Residuals up to 10 ppm. With Ortho-tolidine—Part II ..... N. S. Chamberlin and J. R. Glass Sep 1943 **35** 1205
War Problems in Analysis and Treatment
A. M. Buswell, R. C. Gore, H. E. Hudson Jr., A. C. Wiese and T. E. Larson Oct 1943 **35** 1303
Tables for the Determination of Alkaline Compounds in a Softened Water ..... Douglas Feben Oct 1943 **35** 1312
Tests for Active Residual Chlorine and Chloramine in Water
Francis J. Hallinan Mar 1944 **36** 296
A New Index for Determining Amount of Calcium Carbonate Scale Formed by a Water ..... John W. Ryznar Apr 1944 **36** 472
The Calculation of Alkalinities and Free Carbon Dioxide in Water by the Use of Nomographs ..... John F. Dye Aug 1944 **36** 895
The Practical Use of the Ortho-tolidine-Arsenite Test for Residual Chlorine ..... F. Wellington Gilcreas and F. J. Hallinan Dec 1944 **36** 1343

ANALYSIS OF WATER—PHYSICAL/MICROSCOPIC

Use and Limitations of Conductivity Measurements of Well Water Quality....K. W. Brown Apr 1940 **32** 675
Discussion....H. C. Medbery Apr 1940 **32** 687
Discussion....H. E. Bacon Apr 1940 **32** 690
Rubber Rim Whipple Cell for Plankton Counts....A. A. Hirsch Sep 1940 **32** 1470
Identification of Micro-organisms in Relation to Water Purification
James B. Lackey Oct 1942 **34** 1559
Use of Turbidity Determinations in Estimating the Suspended Load of Natural Streams....Richard G. Grassy Apr 1943 **35** 439

BOILER FEEDWATER (See also TREATMENT AND TREATMENT PLANTS, RECARBONATION WITH SOFTENING)

Report of the Joint Research Committee on Boiler Feedwater Studies
R. C. Bardwell Aug 1941 **33** 1402
Critical Problems in the Boiler Feedwater Field....M. C. Schwartz Aug 1942 **34** 1214
Conditioning Water for Steam Production....F. H. Long Mar 1944 **36** 303

CHEMICALS, COAGULATION, MIXING AND SEDIMENTATION

Fractionated Coagulation—A New Procedure
Rogelio A. Trelles, Daniel J. Bengolea and Adolfo Gonzalez Poccard May 1940 **32** 742
Chemical Feeders....L. E. Harper Nov 1940 **32** 1886
Effects of Temperature on Rate of Floc Formation
Thomas R. Camp, Darrell A. Root and B. V. Bhoota Nov 1940 **32** 1913
Notes on Current Flocculation Problems....Thomas M. Riddick May 1941 **33** 908
Water Conditioning by Flocculation....Samuel L. Tolman Mar 1942 **34** 404
Chemical Treatment Plans for the South District Filtration Plant
John R. Baylis Sep 1942 **34** 1397
Use of the Emergency Alternate Specifications Alum . .Fred E. Stuart Jan 1943 **35** 34
Some New Features in the Design of Vertical Flocculation Units
Charles Gilman Hyde and Harvey F. Ludwig Feb 1944 **36** 151
Water Purification Methods Involving Sodium Silicates
Harold R. Hay Jun 1944 **36** 626

CIVILIAN DEFENSE—MUTUAL AID

Organizing for Community Defense....Harry E. Jordan Oct 1940 **32** 1732
Public Water Supply in the Civil Defense Program...Harry E. Jordan Jan 1941 **33** 121
Protective Lighting of Water Works....Robert J. Swackhamer Apr 1941 **33** 671
Auxiliary Supply in Westchester County, N. Y.....W. E. Thrasher Apr 1941 **33** 680
Defense Measures for New York Supply....Tobias Hochlerner Apr 1941 **33** 689
Health Department Defense Measures in Nassau County, N. Y.
J. L. Barron Apr 1941 **33** 701
Auxiliary Water Supplies for Fire Protection....A. C. Hutson May 1941 **33** 972
Utility Co-ordination in Emergencies....L. A. Geupel Jun 1941 **33** 1079
Pollution Prevention in Distribution Systems in Britain
E. G. B. Gledhill and A. W. H. McCanlis Jun 1941 **33** 1116
National Defense and the Individual....Willard Chevalier Aug 1941 **33** 1307
Chlorination Equipment Available for Emergency Use. .Harry A. Faber Aug 1941 **33** 1319
Experiences With Emergency Chlorinating Equipment . .G. E. Arnold Aug 1941 **33** 1327

CIVILIAN DEFENSE—MUTUAL AID (Con.)

Protection of Utility Services in Wartime	W. H. Wood and C. J. Pulham	Aug	1941	33	1440
Defense of Water Supply Works	Norman J. Howard	Sep	1941	33	1475
Water Supply Defense in New Jersey	H. T. Critchlow	Sep	1941	33	1517
Protection of Buffalo's Pumping Station Against Service Interruption	Leonard A. Bergman	Sep	1941	33	1586
Symposium on Equipment Available for Emergency Repairs to Distribution Systems	Nelson Thompson, Clinton Inglee, Rossiter S. Scott and H. Y. Carson	Oct	1941	33	1779
Water Supply Facilities and National Defense	John Edgar Hoover	Nov	1941	33	1861
Notes on Water Works Defense	David S. Thomas and H. B. Foote	Nov	1941	33	1866
National Defense Council at Gloversville, N. Y.	Robert M. Colt	Nov	1941	33	1869
Wartime Water Works Maintenance in Britain	A. Carrington Wildsmith	Feb	1942	34	179
New York State Mutual Aid Plan for Water Service in Case of Emergencies	Anselmo F. Dappert	Feb	1942	34	189
Chlorination of Water—Protection of Water Plants		Mar	1942	34	468
Emergency Procedure Under Mutual Aid Plans		Mar	1942	34	473
Some Physical Effects of Bombing	Herman G. Baity	Apr	1942	34	513
Repairing for Defense	Louis R. Howson	Jun	1942	34	793
Organization and Training of Water Main Emergency Repair Crews and Auxiliary Personnel Assigned to Emergency Water Service Duties. Water Series Bulletin No. 1		Jun	1942	34	803
Wartime Control of Public Utilities	A. E. K. Bunnell	Jun	1942	34	823
Wartime Procurement Problems of Canadian Utilities	M. J. McHenry	Jun	1942	34	829
Water Storage for Air Raid Defense		Jun	1942	34	969
Present Status of Tests for Organic Pollution Loads	A. M. Buswell and E. C. Dunlop	Jul	1942	34	1063
Honolulu Wartime Water Works Activity	Frederick Ohrt	Aug	1942	34	1141
Guarding Water Works Property					
Connecticut	Warren J. Scott	Aug	1942	34	1163
Portland, Maine	Harry U. Fuller	Aug	1942	34	1168
Los Angeles	W. W. Hurlbut	Aug	1942	34	1169
The Mutual Aid Plan at Work					
Maine	Howard H. Potter	Aug	1942	34	1173
New York State	Earl Devendorf	Aug	1942	34	1179
Pennsylvania	John H. Murdoch Jr.	Aug	1942	34	1186
Administrative Problems of Water Works in Wartime					
Milwaukee	H. H. Brown	Aug	1942	34	1189
Evansville, Ind.	L. A. Geupel	Aug	1942	34	1192
Kansas City, Mo.	K. K. King	Aug	1942	34	1193
Detroit	L. G. Lenhardt	Aug	1942	34	1196
Indianapolis	H. S. Morse	Aug	1942	34	1201
Emergency Repair of Distribution Systems	W. Victor Weir	Aug	1942	34	1205
Discussion	Bernard W. Cullen	Aug	1942	34	1210
Water Service in Wartime London	Henry Berry	Sep	1942	34	1298
Effects of Air Attack Upon Utility and Other Structures	Walter D. Binger	Sep	1942	34	1328
Water Supply Protection in Civilian Defense	Ralph E. Tarbett	Sep	1942	34	1335
Chicago Civilian Defense Plans for Water Safety Control	Arthur E. Gorman	Sep	1942	34	1343

CIVILIAN DEFENSE—MUTUAL AID (Con.)

Investigations of Water Works Protection in Ohio.....W. H. Knox	Sep	1942	**34**	1357
Greater Vancouver Water District Mutual Aid Plan..William Powell	Oct	1942	**34**	1588
Health Departments in Wartime.....A. H. Stewart	Nov	1942	**34**	1685
Pumping Stations in the Blitz.....Henry Berry	Nov	1942	**34**	1689
Wartime Revision of Water Service Regulation—Illinois Commerce Commission Order.....	Nov	1942	**34**	1736
Wartime Protection of Water Supply Quality.....	Nov	1942	**34**	1737
Review of the Olean Flood in Relation to the Mutual Aid and Civilian Protection Programs.....Alan D. Drake and Frank O'B. Nehin	Dec	1942	**34**	1743
Wartime Control of Water Quality.....Charles R. Cox	Dec	1942	**34**	1755
Manual on Emergency Repairs to Water Distribution Systems.....	Dec	1942	**34**	1889
War Emphasis in Water Works Management.....Samuel B. Morris	Jan	1943	**35**	1
Maintenance of Water Supply in Britain Under War Conditions.....	Jan	1943	**35**	7
Can American Water Systems Provide for Civilian Defense Kenneth J. Carl	Jan	1943	**35**	19
Civilian Defense and Public Water Supply.....Gordon E. McCallum	Jan	1943	**35**	27
Maintenance of Public Water Supplies for Civilian Defense Daniel W. Evans	Jan	1943	**35**	30
Practical Aspects of Guarding Utility Properties.....George A. Hunt	Jan	1943	**35**	65
Plans for Emergency Distribution System Repairs in San Francisco George W. Pracy	Jan	1943	**35**	69
Wartime Administrative Problems of the Dallas City Water Works Homer A. Hunter	Jan	1943	**35**	73
Morale.....	Jan	1943	**35**	*Following page* 134
Organization and Activities of the Subcommittee on Water Supply of the California State Council of Defense Charles Gilman Hyde, Harry Reinhardt and Murray R. MacKall	Feb	1943	**35**	183
Wartime Activities of the Bureau of Sanitary Engineering of the Florida State Board of Health.....J. B. Miller	Feb	1943	**35**	196
Training of Water Works Personnel Under the E.S.M.W.T. Program N. C. Ebaugh	Feb	1943	**35**	199
Mutual Aid in New York During 1942.....Earl Devendorf	Feb	1943	**35**	201
Operation of a Control Center—A Play in One Act.....	Feb	1943	**35**	207
Public Water Supply Defense in North Carolina..Warren H. Booker	Feb	1943	**35**	223
The Mutual Aid Plan in Indiana.....Louis A. Geupel	Feb	1943	**35**	227
The Civilian Defense Program in Virginia.....J. H. Wyse	Feb	1943	**35**	232
Wartime Problems of the East Bay Municipal Utility District J. S. Longwell	Mar	1943	**35**	309
Duties of U. S. Citizens Defense Corps in Gas Defense.....	Mar	1943	**35**	381
Classification of Utility Employees in Defense Corps.....	Mar	1943	**35**	384
Identification of Emergency Motor Vehicles.....	Mar	1943	**35**	385
Michigan Water Works School on Wartime Maintenance of Water Service.....	May	1943	**35**	601
The Mutual Aid Training Program in Zone 22, New York State E. P. Stewart and H. H. Wagenhals	May	1943	**35**	609
Legal Aspects of Civilian Defense Volunteer Services in Michigan George R. Sidwell	May	1943	**35**	655
War Civilian Security Program—Medical and Cash Benefits for Injuries to Civilian Defense Workers.....	May	1943	**35**	657
Auxiliary Water Supplies for Emergency Service....Earl L. Holloway	Jun	1943	**35**	701

CIVILIAN DEFENSE—MUTUAL AID (Con.)

Financial Problems of Civil Defense....Henry Berry Aug 1943 **35** 1005
Recruiting and Training Auxiliaries for Water Works..Earl Devendorf Aug 1943 **35** 1090
Civilian Defense and Public Water Supply....U. S. Grant 3rd Sep 1943 **35** 1139
The War's Effect on English Local Government....Arthur Collins Sep 1943 **35** 1146
Comments....U. S. Grant 3rd Sep 1943 **35** 1155
War Problems in Analysis and Treatment
A. M. Buswell, R. C. Gore, H. E. Hudson Jr., A. C. Wiese and T. E. Larson Oct 1943 **35** 1303
Emergency Chlorination Program in Los Angeles County..C. W. Sopp Feb 1944 **36** 186
Cleveland's Mobile Emergency Pump....S. C. Simmermacher Jun 1944 **36** 658

COLOR REMOVAL

Color Removal With the Accelerator....J. M. Kahn May 1943 **35** 597

CONDUITS AND TUNNELS

Mono Craters Tunnel Construction Problems....H. L. Jacques Jan 1940 **32** 43
New High Pressure Steel Water Supply Line for Colorado Springs
E. L. Mosley Aug 1940 **32** 1225
Pumping and Related Equipment Used on the Mono Craters Tunnel Project....S. M. Dunn Aug 1940 **32** 1242

CONSUMPTION, CONSERVATION, WASTE AND LEAKAGE

Leak Detection....H. W. Niemeyer Aug 1940 **32** 1354
Increasing Water Sales....D. W. Robinson Nov 1940 **32** 1853
Hydraulics, Psychology and Common Sense....D. R. Taylor Jan 1942 **34** 1
Comparison of Estimated and Actual Consumption From the Birmingham Industrial Water Supply System....A. Clinton Decker Apr 1942 **34** 569
Water Waste Prevention and Correction in Pittsburgh
Homer E. Beckwith Oct 1942 **34** 1523
Studies on Maximum Momentary Demand....A. P. Kuranz Oct 1942 **34** 1538
Erratum.... Oct 1942 **34** 1628
Water Conservation in Wartime—A Round Table Discussion
James H. Allen, R. C. Beckett, H. T. Critchlow, R. I. Dodd and M. J. McLaughlin Feb 1943 **35** 173
Effect of Water Waste on Power Consumption....Homer E. Beckwith Mar 1943 **35** 295
Water Saving Survey in Allentown, Pa....William R. Schnabel Aug 1943 **35** 993
WPB Report on Voluntary Conservation Program for Water Utility Industry—Task Committee of the Water Utility Industry.... Sep 1943 **35** 1249
Use Water Usefully.... Oct 1943 **35** 1396
We Are Doing This for Uncle Sam.... Nov 1943 **35** 1514
Field Reports on "Water Conservation".... Dec 1943 **35** 1607
Let Willing Water Be Your Salesman.... Dec 1943 **35** 1608
Water Conservation in Long Beach, Calif.... Jan 1944 **36** 123
Use Water Usefully.... Jan 1944 **36** 125
Victory Garden Rates and Problems....C. P. Harnish Feb 1944 **36** 141
Money Talks for Water Conservation in Louisville, Ky.... Feb 1944 **36** 256
Watering Lawns.... Mar 1944 **36** 330
How Much Does a Leaking Faucet Waste?.... Mar 1944 **36** 376
Developing Consumer Co-operation in Reducing Water Consumption
Harry R. Hall Apr 1944 **36** 415
Reducing Water Waste in Industrial Plants....Lewis B. Miller Apr 1944 **36** 420

CONSUMPTION, CONSERVATION, WASTE AND LEAKAGE (Con.)

Water Conservation in Philadephia	Martin J. McLaughlin	Apr	1944	**36**	497
Stop Waste—Look After Your Pumps	Morris L. Hicks	May	1944	**36**	546
Check the Use of Water	D. E. Davis	May	1944	**36**	599
Water Conservation and Population Shift		Jun	1944	**36**	698
Willing Water and Water Conservation		Jul	1944	**36**	801
Balancing the Production With the Sales Record	A. P. Kuranz	Nov	1944	**36**	1260

CONTROL AND REMOVAL OF AQUATIC GROWTHS, TASTES AND ODORS

Taste and Odor Control at Dallas	L. C. Billings	Apr	1940	**32**	613
Control of Algae at Appleton, Wisconsin	William U. Gallaher	Jul	1940	**32**	1165
Taste and Odor Control on Lake Michigan	Norton A. Thomas	Jul	1940	**32**	1183
Algae Control	William D. Monie	Apr	1941	**33**	705
Discussion	Thurlow C. Nelson	Apr	1941	**33**	716
The History of Taste and Odor Control	William W. Hassler	Dec	1941	**33**	2124
Investigation of an Unusual Natural Water Softening	D. W. Graham	Apr	1942	**34**	589
Copper Sulfate Dispersion and Settlement	H. C. Medbery	May	1942	**34**	735

CORROSION (EXTERNAL), ELECTROLYSIS, GROUNDING OF ELECTRICAL LINES

Grounding of Electric Circuits on Water Pipes	J. B. Downer	Jan	1940	**32**	115
Cathodic Protection on Domestic Distribution System at Treasure Island	Charles H. Lee	Feb	1940	**32**	305
Corrosion and Tuberculation	H. A. Knudsen	Mar	1940	**32**	387
Protective Grounding of Electric Installations—Present Attitude of A.W.W.A.	Harry E. Jordan	Nov	1940	**32**	1940
Progress Report—American Research Committee on Grounding		Nov	1940	**32**	1946
Program for Research on the Effects of Electric Grounding on Water Pipes	Rolf Eliassen	Sep	1941	**33**	1541
Progress Report. American Research Committee on Grounding		Jan	1942	**34**	69
Corrosion Study of Bolting Materials and Coatings	Otto A. Halvorson	Jan	1942	**34**	76
Progress Report. American Research Commitee on Grounding		Mar	1943	**35**	333
Grounding of Electric Circuits on Water Pipe. Statement of A.W.W.A. Policy		Apr	1944	**36**	381
Interim Report of Investigations. American Research Committee on Grounding		Apr	1944	**36**	383
Report of a Research Project on the Effects of Electric Grounding on Water Pipes	Rolf Eliassen and Philip Goldsmith	May	1944	**36**	563

CORROSION (INTERNAL), PIPELINE FRICTION, MAIN CLEANING

Main Cleaning	William S. Staub	Jan	1940	**32**	77
Economic Evaluation of Tuberculation in Pipelines	Louis J. Alexander	Mar	1940	**32**	371
Discussion	Clinton Inglee	Mar	1940	**32**	385
Corrosion and Tuberculation	H. A. Knudsen	Mar	1940	**32**	387
Corrosion Control	Oscar C. Blumberg	Mar	1940	**32**	394
Outline of the Corrosion Problem in Water Works	George D. Norcom	Mar	1940	**32**	401
Corrosion of Consumers' Plumbing	Robert R. Ashline	Mar	1940	**32**	408
Cathodic Protection of Steel Water Tanks	Earl E. Norman	Jul	1940	**32**	1069
Steel Tank Corrosion Prevention	W. C. Mabee	Jul	1940	**32**	1075

CORROSION (INTERNAL), PIPELINE FRICTION, MAIN CLEANING (Con.)

Discussion	T. H. Wiggin	Jul	1940	**32**	1077
The Rehabilitation of Water Mains	Earl S. Hoyt	Nov	1940	**32**	1843
The Bacterial Corrosion of Iron and Steel	T. D. Beckwith	Jan	1941	**33**	147
Discussion	C. K. Calvert	Jan	1941	**33**	165
Discussion	Max Suter	Jan	1941	**33**	166
Corrosion and Cathodic Protection	G. H. Montillon	Feb	1941	**33**	302
Cleaning Mains at Manasquan, N. J.	J. K. Van Brunt	Apr	1941	**33**	755
Notes on Current Corrosion Problems	Thomas M. Riddick	May	1941	**33**	903
Fundamentals of Corrosion	G. W. Gleeson	Jul	1941	**33**	1249
Water Main Cleaning in the War Effort	Clinton Inglee	Dec	1942	**34**	1771
Importance of the Distribution System	Louis R. Howson	Dec	1943	**35**	1517
Corrosion of Well Pumps	T. E. Larson and J. B. Millis	Aug	1944	**36**	886
Discussion	R. E. Coughlan	Aug	1944	**36**	890
Discussion	H. V. Bowlby	Aug	1944	**36**	890
Discussion	R. H. Wasson	Aug	1944	**36**	891
Discussion	Frank P. Macdonald	Aug	1944	**36**	893

CORROSION PREVENTION

The Physiology of Sodium Hexametaphosphate	K. K. Jones	Sep	1940	**32**	1471
Corrosion Control by Sodium Hexametaphosphate	A. T. Gidley and Robert Spurr Weston	Sep	1940	**32**	1484
Notes on Corrosion Prevention by Sodium Hexametaphosphate	Edward C. Trax	Sep	1940	**32**	1495
Progress Report on the Use of Sodium Hexametaphosphate at Garden City, N. Y.	Allan H. Rogers	Sep	1940	**32**	1498
Corrosion Control by pH Correction	Irving L. Dahljelm	Feb	1941	**33**	286
Notes on Current Corrosion Problems	Thomas M. Riddick	May	1941	**33**	903
Inhibition of Lead Corrosion With Sodium Hexametaphosphate	G. B. Hatch	Jul	1941	**33**	1179
Studies in Corrosion Control	H. P. Stockwell Jr.	Aug	1941	**33**	1409
Progress in Water Conditioning Methods to Inhibit Corrosion	Committee Report	Sep	1941	**33**	1534
Effect of Sodium Hexametaphosphate on the Solution of Lead	Edward W. Moore and Fred E. Smith	Sep	1942	**34**	1415
The Value of Sodium Hexametaphosphate in the Control of Difficulties Due to Corrosion in Water Systems	Committee Report	Dec	1942	**34**	1807
Brief History of the Use of the Glassy Phosphates for the Control of Difficulties Due to Corrosion	Owen Rice	Dec	1942	**34**	1808
Theory of the Action of Hexametaphosphate	E. W. Moore	Dec	1942	**34**	1809
Survey of Results of Metaphosphate Treatment	E. H. Thwaits	Dec	1942	**34**	1810
Application of Metaphosphate to Ferrous Metal Piping Systems	H. P. Stockwell Jr	Dec	1942	**34**	1812
Application of Metaphosphate to Non-ferrous Systems	E. W. Moore	Dec	1942	**34**	1819
Use of Metaphosphate in Conjunction With Other Chemicals	H. M. Olson	Dec	1942	**34**	1821
Disturbances Produced in Water Systems by Metaphosphates	John J. Quinn	Dec	1942	**34**	1822
Instances of Failure of Metaphosphate Treatment	E. W. Moore	Dec	1942	**34**	1823
The Economics of Metaphosphate Treatment	Marsden C. Smith	Dec	1942	**34**	1824
Conclusions		Dec	1942	**34**	1826
Discussion	Frank E. Hale	Dec	1942	**34**	1828

CORROSION PREVENTION (Con.)

Corrosion of Well Pumps	T. E. Larson and J. B. Millis	Aug	1944	**36**	886
Discussion	R. E. Coughlan	Aug	1944	**36**	890
Discussion	H. V. Bowlby	Aug	1944	**36**	890
Discussion	R. H. Wasson	Aug	1944	**36**	891
Discussion	Frank P. Macdonald	Aug	1944	**36**	893

COSTS—STATISTICS OF WATER WORKS

Depreciation of Cast-Iron Water Mains Related to Actual Service Lives	Reeves Newsom and E. H. Aldrich	May	1940	**32**	795
Annual Report of a Small Water Works	L. E. Jarvis	Jul	1940	**32**	1101
The Use and Abuse of Depreciation	John H. Murdoch Jr.	Oct	1940	**32**	1647
Property Records and Valuation	Reeves Newsom	Oct	1940	**32**	1666
Management of Water Works	Louis R. Howson	Jul	1941	**33**	1161
Materials Requirements for U. S. Public Water Supply Construction and Maintenance	Harry E. Jordan	May	1942	**34**	737
Progress Report No. 1 of the Committee on Survival and Retirement Experience With Water Works Facilities		Oct	1942	**34**	1585
The Extent of Use of Activated Carbon. A Review of the U.S.P.H.S. Survey	E. A. Sigworth	Dec	1943	**35**	1587
Water Conservation and Population Shift		Jun	1944	**36**	698
A Review of the Cost of Water Works Structures	Charles B. Burdick	Aug	1944	**36**	821
Survival and Retirement Experience With Water Works Structures—A Committee Report	E. H. Aldrich	Aug	1944	**36**	832

CROSS-CONNECTIONS (See also PLUMBING HAZARDS)

Present Status of Cross-Connection Control	E. Sherman Chase	Oct	1940	**32**	1737
A Simple Method for Location of Cross-Connections in Piping Systems	R. C. Dohe	Dec	1940	**32**	1997
Pollution of Drinking Water Through Cross-Connection With Fire Lines	J. C. Geiger	Dec	1940	**32**	2006
Memorandum	Charles Gilman Hyde	Dec	1940	**32**	2014
Practical Aspects of Cross-Connection, Inter-Connection and Back-Flow Protection	R. F. Goudey	Mar	1941	**33**	391
Legal Aspects of Cross-Connection, Inter-Connection and Back-Flow Protection	Robert E. Moore Jr.	Mar	1941	**33**	495
Cross-Connection Control	Committee Report	Jan	1942	**34**	17

DAMS

Relation of River Dams to Community Water Supplies	W. G. Stromquist and L. H. Clouser	Mar	1942	**34**	367
Relationship of Missouri River Navigation Improvements to Valley Properties	F. S. Besson	Apr	1942	**34**	475
Discussion	W. T. Bailey	Apr	1942	**34**	487
U. S. Water Supply Practice	A. E. Kelso. (Abstracted by Sterling S. Green)	Jul	1942	**34**	984

DISTRIBUTION SYSTEMS

Recommended Practice for Distribution System Records	Committee Report	Feb	1940	**32**	181
Department Records for Supply and Distribution	Howard A. Harris Jr.	Feb	1940	**32**	255

DISTRIBUTION SYSTEMS (Con.)

Jacking 72-Inch Culvert Pipe Under Outfall Sewer...Ralph Shepherd Mar 1940 **32** 414
Effect of Enlarging a Main at Point of Diversion of a Branch Line
Samuel A. Evans Mar 1940 **32** 431
Additions and Changes at Fredericksburg.....Roland J. Leveque Apr 1940 **32** 641
Sterilization of New Mains at Springfield, Ill.....S. T. Anderson Apr 1940 **32** 645
Importance of Sampling and Studying the Water in the Distribution System.....A. T. Lundberg Apr 1940 **32** 649
Legal Decisions Relating to Distribution of Public Water Supplies
Frank A. Marston Jul 1940 **32** 1081
Control of Iron and Sulfur Organisms by Super-chlorination and Dechlorination.....Louis J. Alexander Jul 1940 **32** 1137
Leak Detection.....H. W. Niemeyer Aug 1940 **32** 1354
Bacterial Depreciation of Water Quality in Distribution Systems
Norman J. Howard Sep 1940 **32** 1501
Ownership and Maintenance of Service Lines and Curb Boxes
William C. Shoemaker Nov 1940 **32** 1848
Distribution System Analysis in Edmonton.....C. K. Hurst Dec 1940 **32** 2038
Radio Directed Water and Sewer Service.....K. F. Hoefle Dec 1940 **32** 2067
Financing of Extensions at Los Angeles.....E. F. Dandridge Feb 1941 **33** 219
Pollution Prevention in Distribution Systems in Britain
E. G. B. Gledhill and A. W. H. McCanlis Jun 1941 **33** 1116
Management of Water Works.....Louis R. Howson Jul 1941 **33** 1161
Automatic Recording and Control Devices in Tacoma's Water System
W. A. Kunigk Jul 1941 **33** 1188
Chlorination Equipment Available for Emergency Use.Harry A. Faber Aug 1941 **33** 1319
Experiences With Emergency Chlorinating Equipment....G. E. Arnold Aug 1941 **33** 1327
The Pollution and Emergency Disinfection of Rochester's Water Supply.....Earl Devendorf Aug 1941 **33** 1334
Errata..... Sep 1941 **33** 1626
Investigating Water Quality in a Distribution System
Albert M. Shannon and William M. Wallace Aug 1941 **33** 1429
Symposium on Equipment Available for Emergency Repairs to Distribution Systems
Nelson Thompson, Clinton Inglee, Rossiter S. Scott and H. Y. Carson Oct 1941 **33** 1779
Ridding the Distribution System of Pumping Station Noises
S. M. Dunn Feb 1942 **34** 221
Growing Pains of a Small Town Water System.....P. D. Wilson Mar 1942 **34** 402
Water Main Extension Policies in Wisconsin.....P. A. Reynolds Apr 1942 **34** 544
Methods of Financing Water Main Extensions in California
Morris S. Jones Apr 1942 **34** 555
Problems and Limitations in the Installation of Water Main Extensions to Suburban Areas.....M. B. Whitaker Apr 1942 **34** 561
Water Quality Problems in Small Systems.....Lawrence H. Cook Jun 1942 **34** 911
Tentative Manual of Safe Practice in Water Distribution—7J.1-T.... Jun 1942 **34** 915
Emergency Repair of Distribution Systems.....W. Victor Weir Aug 1942 **34** 1205
Discussion.....Bernard W. Cullen Aug 1942 **34** 1210
The Value of Distribution System Studies for Meeting Present Emergencies and Postwar Problems.....E. Shaw Cole Dec 1942 **34** 1762
Sterilization of New and Repaired Mains.....C. H. Billings Dec 1942 **34** 1777
Maintenance of Chlorine Residual in the Distribution System
Houston, Tex.....Clyde R. Harvill and J. H. Morgan Dec 1942 **34** 1797

DISTRIBUTION SYSTEMS (Con.)

Boonville, Mo.	Major C. Hagar	Dec	1942	**34**	1801
Wheeling, W. Va.	Arthur R. Todd	Dec	1942	**34**	1805
Manual on Emergency Repairs to Water Distribution Systems		Dec	1942	**34**	1889
Substitute Materials in the Water Works Field	Richard Bennett	Jan	1943	**35**	37
Proposed Plan for Water Main Sterilization	A. N. Heller	Feb	1943	**35**	168
Industrial Water Treatment as a Distribution System Hazard	C. K. Calvert	Nov	1943	**35**	1399
Importance of the Distribution System	Louis R. Howson	Dec	1943	**35**	1517
Fundamentals of Utility Extension Rules	E. F. McNaughton	Mar	1944	**36**	311
Discussion	J. S. Longwell	Mar	1944	**36**	314
Safety in Water Main Construction	Fred Eitel	May	1944	**36**	542
Practical Studies of Distribution Systems	George W. Booth	Sep	1944	**36**	957
Discussion	H. E. Beckwith	Sep	1944	**36**	965
Discussion	W. E. Howland	Sep	1944	**36**	966
The Design and Construction of the Milwaukee Water Works	Joseph P. Schwada	Oct	1944	**36**	1019
Constructing and Financing Interconnections in New York	Newell L. Nussbaumer	Dec	1944	**36**	1294
Constructing and Financing Interconnections in New Jersey	H. T. Critchlow	Dec	1944	**36**	1301
The Bacteria in a Distribution System	Albert M. Shannon and William M. Wallace	Dec	1944	**36**	1356

EDUCATION, LICENSING AND TRAINING

Water Works Schools	H. B. Foote	Apr	1941	**33**	611
Report on Indiana District and Short Schools	J. D. Richetta	Apr	1941	**33**	618
Certification of Operators in Tennessee	James H. Fry	Apr	1941	**33**	625
Licensing Water Works Operators. 1940 Staff Report		Apr	1941	**33**	631

FILTRATION

Filter Sand	Thomas M. Riddick	Jan	1940	**32**	121
Discussion	Henry T. Hotchkiss	Jan	1940	**32**	136
Discussion	William E. Stanley	Jan	1940	**32**	137
Discussion	Roberts Hulbert	Jan	1940	**32**	139
Discussion	Edward S. Hopkins	Jan	1940	**32**	141
Discussion	Edward R. Stapley	Jan	1940	**32**	144
Author's Closure		Jan	1940	**32**	146
Effectiveness of Sand Filter Layers in Removing Floc	G. B. McCall, S. E. Edwards and Edward S. Hopkins	Jan	1940	**32**	147
Filter Sand—From a Producer's Standpoint	H. J. Gerrard	Jan	1940	**32**	152
Porous Filter Bottoms at Flat Rock, Michigan	Loran Stevens	Mar	1940	**32**	494
Discussion	Harry T. Campion	Mar	1940	**32**	500
Experiences With the Palmer Filter Agitator at Olean	Joseph E. Rehler	Aug	1940	**32**	1381
Concentrator for Solids in Filter Effluent	Herman Weigand	Sep	1940	**32**	1528
A Small Pressure Filter Plant	William W. Watkins	Nov	1940	**32**	1896
A Working Model of a Filtration System	Harold J. Abrahams	Dec	1940	**32**	1975
Clogging of Rapid Sand Filters	Rolf Eliassen	May	1941	**33**	926
Methods of Handling Sand and Gravel	M. P. Crabill	Jul	1941	**33**	1221
Perforated-Pipe Underdrains for Rapid Sand Filters	Edwin A. Schmitt and Philip O. Macqueen	Jun	1942	**34**	857

FILTRATION (Con.)

Erratum		Sep	1942	**34**	1414
Discussion	E. A. Hardin	Jun	1942	**34**	875
The Filter Backwash-Sand Expansion and Velocity	Roberts Hulbert	Jul	1942	**34**	1045
The Fundamentals of a Properly Designed and Properly Operating Filter	Carl J. Lauter	Jul	1942	**34**	1051
Some Observations on Filters	F. R. Georgia	Jul	1942	**34**	1055
Tentative Standard Specifications for Filtering Material 5C-T		Apr	1943	**35**	455
Surface Washing of Filters at Orrville, Ohio	James E. Specht	May	1943	**35**	568
Anthrafilt and Its Significance	H. G. Turner	Apr	1944	**36**	431
Diatomite Water Filtration Developed for Field Troops	Hayse H. Black and Charles H. Spaulding	Nov	1944	**36**	1208

FIRES, FIRE PREVENTION AND PROTECTION (See also CONSUMPTION, DISTRIBUTION SYSTEMS, HYDRANTS, METERS AND RATES)

Organizing to Prevent Fires	Percy Bugbee	Jun	1940	**32**	987
The Water Works' View of the Use of Public Water Supplies for Private Fire Protection	Reeves Newsom	Jun	1940	**32**	993
The Texas Fire Insurance Department	Albert R. Davis	Jun	1940	**32**	1001
Relationship Between Fire and Water Departments	Jay W. Stevens	Nov	1940	**32**	1834
Insurance Requirements for Water Works Properties	R. F. Goodhue	Jun	1941	**33**	1058
Postwar Planning and Possibilities of Reduced Fire Insurance Premiums as a Factor in the Cost of Small Town Water Works System	James R. McComas	May	1943	**35**	556
Co-operation Between Water and Fire Departments	Arnold C. Renner	Jun	1943	**35**	694
Practical Studies of Distribution Systems	George W. Booth	Sep	1944	**36**	957
Discussion	H. E. Beckwith	Sep	1944	**36**	965
Discussion	W. E. Howland	Sep	1944	**36**	966

GROUND WATER—GEOLOGY

Improvements to Wichita Water Supply	R. E. Lawrence	Aug	1940	**32**	1321
Discussion	W. D. Moore	Aug	1940	**32**	1338
Ground Water for Public Supply in Western Pennsylvania	R. M. Leggette	Nov	1940	**32**	1857
Discussion	H. C. Kneeland	Nov	1940	**32**	1865
Ground Water in Southeastern Florida	William P. Cross and S. Kenneth Love	Apr	1942	**34**	490
Sanitary Construction and Protection of Wells	H. J. Ongerth	May	1942	**34**	671
Ground Water—A Vital National Resource					
General Nature of the Current Problem	O. E. Meinzer	Nov	1942	**34**	1595
Midwest Problems	Charles B. Burdick	Nov	1942	**34**	1606
Erratum		Dec	1942	**34**	1784
Pacific Coast Problems	Samuel B. Morris	Nov	1942	**34**	1615
Capacity Tests of Ground-Water Sources at Laramie, Wyoming	R. D. Goodrich	Nov	1942	**34**	1629
New Developments in Ground-Water Exploration	Carl A. Bays	Jul	1943	**35**	911
Purposes and Procedures of Ground-Water Surveys in Illinois	A. M. Buswell and Max Suter	Jul	1943	**35**	921
Control of Water Well Drilling, Illinois Section Committee Report		Jul	1943	**35**	927
Indiana Water Resources Investigations	Charles H. Bechert	Jul	1943	**35**	929
Ground-Water Investigations in Florida (With Special Reference to Duval and Nassau Counties.)	H. H. Cooper Jr.	Feb	1944	**36**	169

GROUND WATER—GEOLOGY (Con.)

Effect of Storage Reservoir Detritus on Ground Water
T. V. Ackerman and E. J. Lynde Mar 1944 **36** 315
Utilization of Ground Water in a Postwar Program
H. Howard Cranston Nov 1944 **36** 1242

HEALTH

Typhoid in Large Cities of the United States in 1939 Aug 1940 **32** 1394
The Physiology of Sodium Hexametaphosphate K. K. Jones Sep 1940 **32** 1471
Water Quality Standards John R. Baylis Oct 1940 **32** 1753
Discussion Harry E. Jordan Oct 1940 **32** 1767
Gastro-Enteritis Outbreak Traced to Painting of Water Tank
M. S. Campbell Nov 1940 **32** 1928
Gastro-Enteritis Epidemic in a Large Office Group
J. C. Geiger, A. B. Crowley and C. G. Hyde Jul 1941 **33** 1263
Viability and Destruction of the Cysts of *Endameba histolytica*
S. L. Chang and Gordon M. Fair Oct 1941 **33** 1705
Legal Responsibility of Minnesota Municipalities for Polluted Water
O. C. Peterson Jan 1942 **34** 37
Study of Solubility of Two Lead Salts in Dilute Solutions With Special Reference to the Lead Hazard in Drinking Water
C. C. Ruchhoft and John F. Kachmar Jan 1942 **34** 85
Relation of County Health Department to Local Water Supplies
Arthur H. Herberger Jun 1942 **34** 836
Discussion Charles R. Cox Jun 1942 **34** 847
Relationship Between Small Town Water Supply and State Health Department Walter A. Reiman Jan 1943 **35** 77
Bubbling Drinking Fountains
Arthur Parker Hitchens and Oscar A. Ross Feb 1943 **35** 165
Transmission of Virus Diseases by Water E. R. Krumbiegel Jan 1944 **36** 81
Water-Borne Outbreak in an Oregon Shipyard
Roy E. Dodson Jr. and A. J. Farrell Apr 1944 **36** 425
The Hygienic Significance of the Contamination of Water With Certain Mineral Constituents
Robert A. Kehoe, Jacob Cholak and Edward J. Largent Jun 1944 **36** 645

HYDRANTS

Modifications of A.W.W.A.-N.E.W.W.A. Standard Specifications for Fire Hydrants for Ordinary Water Works Service by WPB Order L-39 Mar 1943 **35** 418
Hydrant and Valve Inspection and Maintenance Carl W. Seemann May 1944 **36** 560
Historical Development of the Fire Hydrant L. A. Jackson Sep 1944 **36** 928

HYDRAULICS

Distribution System Analysis in Edmonton C. K. Hurst Dec 1940 **32** 2038
Trends in Coefficients of Large Pressure Pipes Charles H. Capen Jr. Jan 1941 **33** 1
Errata Feb 1941 **33** 364
Application of the Hardy Cross Method to Distribution System Problems George Farnsworth Jr. and August Rossano Jr. Feb 1941 **33** 224
Flow and Loss of Head in Distribution Systems J. J. Doland Feb 1941 **33** 234
Computation of Equivalent Lengths of Parallel Pipe Systems
W. E. Howland and F. Farr Jr. Feb 1941 **33** 237

HYDRAULICS (Con.)

Hydraulics, Psychology and Common Sense	D. R. Taylor	Jan	1942	**34**	1
Application of the Hardy Cross Method to the Analysis of a Large Distribution System	W. D. Hurst and N. S. Bubbis	Feb	1942	**34**	247
Errata		Mar	1942	**34**	463
Trends in Coefficients of Large Pressure Pipes	Charles H. Capen	Apr	1942	**34**	523
Discussion	Weston Gavett	Apr	1942	**34**	524
Discussion	John Hedberg	Apr	1942	**34**	530
Discussion	Charles H. Capen	Apr	1942	**34**	530
Discussion	Richard Hazen	Apr	1942	**34**	540
Author's Reply		Apr	1942	**34**	541
The Value of Distribution System Studies for Meeting Present Emergencies and Postwar Problems	E. Shaw Cole	Dec	1942	**34**	1762
Computation of Flows in Distribution Systems	Weston Gavett	Mar	1943	**35**	267
Identical Value Method for Solving Simple Pipe-Flow Problems	A. A. Hirsch	Mar	1943	**35**	288
Fundamentals of a University Hydraulics Education	Samuel B. Morris	Jul	1943	**35**	835
Removable Weir Plate Assembly for Weir Installations	D. I. Grush	Jul	1943	**35**	900
Resistance Coefficient Calculation From Incremental Flow Measurement	Ross E. Thompson	Feb	1944	**36**	163

HYDROLOGY, FLOODS, FLOOD CONTROL, WATER RESOURCES, DROUGHTS, IRRIGATION

Flood-Forecasting Service in Pennsylvania	John W. Mangan	Feb	1941	**33**	213
Relation of River Dams to Community Water Supplies	W. G. Stromquist and L. H. Clouser	Mar	1942	**34**	367
Relationship of Missouri River Navigation Improvements to Valley Properties	F. S. Besson	Apr	1942	**34**	475
Discussion	W. T. Bailey	Apr	1942	**34**	487
Review of the Olean Flood in Relation to the Mutual Aid and Civilian Protection Programs	Alan D. Drake and Frank O'B. Nehin	Dec	1942	**34**	1743
Emergency Experiences During Flash Floods	Bernard S. Bush and M. J. Barrick	Jan	1943	**35**	81
Discussion	George R. Taylor	Jan	1943	**35**	87
Discussion	Myles W. Edwards	Jan	1943	**35**	88
Use of Turbidity Determinations in Estimating the Suspended Load of Natural Streams	Richard G. Grassy	Apr	1943	**35**	439
The Delaware River Basin—A Home Rule Program for the Development of Its Resources	James H. Allen	Jan	1944	**36**	1
The Effect of the Proposed New Jersey Ship Canal on Water Supplies	Charles H. Capen	Aug	1944	**36**	901

INTAKES (See also PIPE AND SUPPLY)

Water Works Intakes	Norman G. McDonald	Apr	1940	**32**	661

IRON AND MANGANESE REMOVAL

Iron Removal in Western Pennsylvania Water Supplies	L. S. Morgan and C. H. Young	Nov	1941	**33**	1929

LEGAL DECISIONS, DAMAGES, ETC.

Changes in Patent Law	Arthur C. Brown	May	1940	**32**	729
Discussion	D. L. Erickson	May	1940	**32**	736
Legal Decisions Relating to Distribution of Public Water Supplies	Frank A. Marston	Jul	1940	**32**	1081
Modern Trends in Legal Liability	G. R. Redding	Jul	1940	**32**	1097
Legal Responsibility of Minnesota Municipalities for Polluted Water	O. C. Peterson	Jan	1942	**34**	37
Some Legal Aspects of Sewage Treatment	Grover Jones	Jan	1942	**34**	53
The Legal Limits of a Water Supply System	John H. Murdoch Jr.	Aug	1944	**36**	865
Discussion	Boyd A. Bennett	Aug	1944	**36**	871
Discussion	J. K. Hoskins	Aug	1944	**36**	875
Water Utility Liability	Cornelius T. Waldo	Nov	1944	**36**	1265

MANAGEMENT, ADMINISTRATIVE PRACTICES, COMMERCIAL PRACTICES AND PERSONNEL ADMINISTRATION (See also ACCOUNTING, RATES, AND REGULATION OF PUBLIC UTILITIES)

Management—Administrative Practices

Water Districts Pro and Con	Alexander Russell	Jan	1940	**32**	57
New Law on Water and Sewerage Districts	William Cheek	Jan	1940	**32**	62
Possible Use of Ohio Conservancy Act for Developing and Operating Water and Sewerage Facilities in Metropolitan Areas	F. H. Waring	Apr	1940	**32**	570
Water and Government	Paul V. McNutt	May	1940	**32**	719
The Water Board as a Factor in Good Management	Henry S. Nollen	Jun	1940	**32**	899
Discussion	W. W. Hurlbut	Jun	1940	**32**	907
Discussion	Geo. J. Rohan	Jun	1940	**32**	909
A Statement of Municipal Policy		Jun	1940	**32**	911
The Public Service Commission and Plant Management	Robert A. Nixon	Jun	1940	**32**	912
The Engineer Looks at Management	R. E. McDonnell	Jun	1940	**32**	923
Management of Municipal Water Works on a Business Basis	Rollin F. MacDowell	Jun	1940	**32**	933
Erratum		Jul	1940	**32**	1224
An Engineer's View of Public Service After Four Years' Experience	Frank O. Wallene	Jun	1940	**32**	945
Management of Combined Municipal Utilities	Otto E. Eckert	Sep	1940	**32**	1435
Discussion	F. W. Martin	Sep	1940	**32**	1441
Efficiency in Managing Water Works Properties	Leonard N. Thompson	Oct	1940	**32**	1677
Water Supply at Akron		Oct	1940	**32**	1775
Relationship Between Fire and Water Departments	J. W. Stevens	Nov	1940	**32**	1834
The Water Superintendent and the Elected Official	Frank D. Livermore	Jan	1941	**33**	84
Erratum		Feb	1941	**33**	364
The Superintendent of Tomorrow	H. V. Pedersen	Jan	1941	**33**	91
Effective Management Under Municipal Ownership	L. A. Smith	Jan	1941	**33**	97
Twenty-Five Years Advance in Water Works	William W. Brush	Apr	1941	**33**	732
Population Trends and Water Supply	Charles J. Alfke	May	1941	**33**	827
Discussion	James E. Garratt	May	1941	**33**	832
Discussion	Reeves Newsom	May	1941	**33**	833

MANAGEMENT—ADMINISTRATIVE PRACTICES (Con.)

Mutual Water Companies and Domestic Water	L. E. Blakeley	May	1941	**33**	894
Insurance Requirements for Water Works Properties	R. F. Goodhue	Jun	1941	**33**	1058
Management of Water Works	Louis R. Howson	Jul	1941	**33**	1161
Management Problems in a Municipal Utility District	J. S. Longwell	Nov	1941	**33**	1897
Machinery Breakdown Insurance	A. F. Graham	Dec	1941	**33**	2192
State Engineering Aid to New Mexico Municipalities	W. Carlos Powell	Jan	1942	**34**	56
How to Make a Small Water Works Self-Sustaining	John M. Holladay	Mar	1942	**34**	390
Growing Pains of a Small Town Water System	P. D. Wilson	Mar	1942	**34**	402
Relation of County Health Department to Local Water Supplies	Arthur H. Herberger	Jun	1942	**34**	836
Discussion	Charles R. Cox	Jun	1942	**34**	847
Administrative Problems of Water Works in Wartime					
Milwaukee	H. H. Brown	Aug	1942	**34**	1189
Evansville, Ind	L. A. Geupel	Aug	1942	**34**	1192
Kansas City, Mo.	K. K. King	Aug	1942	**34**	1193
Detroit	L. G. Lenhardt	Aug	1942	**34**	1196
Indianapolis	H. S. Morse	Aug	1942	**34**	1201
Good Practice in Water Works Management	Wendell R. LaDue	Oct	1942	**34**	1483
Sound Management and the Qualifications of a Good Superintendent	Dale L. Maffitt	Oct	1942	**34**	1489
Jonesboro's Water Works—A Successful Business	Lloyd M. Rebsamen	Oct	1942	**34**	1496
The Omaha Water Works—A Successful Business	Walter S. Byrne	Oct	1942	**34**	1503
War and Water Rates	Reeves Newsom	Oct	1942	**34**	1511
An Operator's Monthly Balance Sheet	Charles E. Moore	Dec	1942	**34**	1880
War Emphasis in Water Works Management	Samuel B. Morris	Jan	1943	**35**	1
A Superintendent's Nightmare	M'Kean Maffitt	Jan	1943	**35**	58
Problems Resulting From Plant Expansion and Minimum Standards for Water Plants in the Southwest	H. J. Darcey	Jan	1943	**35**	71
Wartime Administrative Problems of the Dallas City Water Works	Homer A. Hunter	Jan	1943	**35**	73
Relationship Between Small Town Water Supply and State Health Department	Walter A. Reiman	Jan	1943	**35**	77
Wartime Problems of Supply, Operation and Design	Louis R. Howson	May	1943	**35**	543
Co-operation Between Water and Fire Departments	Arnold C. Renner	Jun	1943	**35**	694
Serve by Saving		Jul	1943	**35**	840
The Problem of a Diminishing Demand at Marshalltown, Iowa	H. V. Pedersen	Aug	1943	**35**	999
Commission Controlled Water Department Operation—Ontario Practice	William Storrie	Nov	1943	**35**	1487
Commission Controlled Water Works Operation in Wisconsin	L. A. Smith	Nov	1943	**35**	1492
Jurisdiction of the State Corporation Commission	H. Lester Hooker	Mar	1944	**36**	284
The Ohio Plan for Financing Sewage Works Improvements	Wendell R. LaDue	Mar	1944	**36**	323
Good Water Works Management	Wendell R. LaDue	Jul	1944	**36**	734
Utility Administration in Canada	A. E. Berry	Jul	1944	**36**	740
Utility Problems in Nova Scotia	Ira P. Macnab	Jul	1944	**36**	743
Utility Administration in Ontario	O. H. Scott	Jul	1944	**36**	753
The Design and Construction of the Milwaukee Water Works	Joseph P. Schwada	Oct	1944	**36**	1019

MANAGEMENT—ADMINISTRATIVE PRACTICES (Con.)

The Operation and Maintenance of the Milwaukee Water Works System — Herbert H. Brown — Oct 1944 **36** 1062
Wartime Problems of Jointly Administered Water and Sewage Works — Wendell R. LaDue, James W. Myers Jr., John W. Pray and Thos. L. Amiss — Oct 1944 **36** 1085
Management and Control of Public Water Supply Services in the Other American Republics — Harold B. Gotaas and Robert D. Mitchell — Oct 1944 **36** 1097
Symposium on Water Works Management and Administration
Introduction — Wendell R. LaDue — Nov 1944 **36** 1222
Water Works Management and Administration in California — J. S. Longwell — Nov 1944 **36** 1224
Water Works Management and Administration in Nebraska — D. L. Erickson — Nov 1944 **36** 1230
Municipal Utility Management in the State of Virginia — Charles E. Moore — Nov 1944 **36** 1236
Discussion — Gerald E. Arnold — Nov 1944 **36** 1239

Management—Commercial Practices

A Program of Equipment Replacement — A. M. Brenneke — Oct 1940 **32** 1689
Discussion — George S. Rawlins — Oct 1940 **32** 1693
Ownership and Maintenance of Service Lines and Curb Boxes — William C. Shoemaker — Nov 1940 **32** 1848
Increasing Water Sales — D. W. Robinson — Nov 1940 **32** 1853
Maintaining Water Service in Sub-zero Weather — Elwood Farra — Dec 1940 **32** 2060
A 100 Per Cent Meterization Program — Everitt Robbins — Jul 1941 **33** 1218
The Control of Automotive Equipment — Louis A. Geupel — Aug 1941 **33** 1362
Meter Reading and Commercial Department Operation — Kenneth K. King — Aug 1941 **33** 1373
Survey of Meter Maintenance Practice — A. P. Kuranz — Aug 1941 **33** 1381
Joint Administration and Collection of Water and Sewer Accounts — Committee Report — Nov 1941 **33** 1911
Discussion — John A. Hickey — Nov 1941 **33** 1923
Discussion — Hal F. Smith — Nov 1941 **33** 1926
Billing Procedure for a Group of Small Plants — William H. Ogden — Dec 1941 **33** 2201
Water Main Extension Policies in Wisconsin — P. A. Reynolds — Apr 1942 **34** 544
Relation Between the Water Plant Superintendent and the Accountant — Otto K. Jensen — Jun 1942 **34** 849
Survey of Billing and Collection Practices of Cities of 100,000–200,000 Population — George F. Hughes — Oct 1942 **34** 1527
Water Works Accounting Practices in Canada — C. W. Eastwood — May 1943 **35** 562
Water Department Practices and Regulations — Melvin P. Hatcher, D. L. Erickson, John C. Detweiler and W. Victor Weir — Apr 1944 **36** 463
Co-operative Meter Reading — May 1944 **36** 562
Balancing the Production With the Sales Record — A. P. Kuranz — Nov 1944 **36** 1260

Management—Personnel Administration

The Kind of Boss I Like — Lorenzo Semple Jr. — Jun 1940 **32** 952
Experiences With a Department Newspaper — George S. Bonn — Sep 1940 **32** 1459
Radio Directed Water and Sewer Service — K. F. Hoefle — Dec 1940 **32** 2067

MANAGEMENT—PERSONNEL ADMINISTRATION (Con.)

Social Security Legislation and Retirement Planning Affecting Water Works Employees.....Dale L. Maffitt Sep 1941 **33** 1489
The Values of an Adequate Civil Service System.....John B. Probst Sep 1941 **33** 1591
The Limitations of Civil Service.....H. A. Van Norman Sep 1941 **33** 1596
Discussion on Civil Service.....E. V. Buchanan Sep 1941 **33** 1609
Job Classification in Municipal Water Works.....Albert R. Davis Nov 1943 **35** 1440
Social Security Legislation.....Dale Maffitt Dec 1943 **35** 1543
Labor Relations in the Public Water Supply Field..James W. Irwin Dec 1943 **35** 1565
Discussion.....Chas. J. Alfke, Walter S. Byrne, Dana Van Dusen and Carl A. Eberling Dec 1943 **35** 1568
The Significance of Good Employee-Employer Relationships Edward B. Mayer Jan 1944 **36** 86
California State Employees' Retirement Act and Its Effect Upon Municipal Water Utility Employees.....Carl K. Chapin Feb 1944 **36** 134
Experiences of a Lady Water Works Chemist.....Sara K. Philhower Feb 1944 **36** 198
A Standard Wage and Salary Administration Plan. Standard Job Classification and Job Description.....Philip B. Niles Apr 1944 **36** 405
Federal Fair Labor Standards Act and Water Companies..... May 1944 **36** 535
Employee Progress Rating and Personnel Records....Philip B. Niles Jun 1944 **36** 603
Employee Organization in the Professional Field and the Public Services.....A. M. Rawn Jul 1944 **36** 762
Does the Team Know the Score?.....Elizabeth McDonnell Jul 1944 **36** 777
Application of the Public Water Supply Industry for Radio Channel Allocations..... Dec 1944 **36** 1285

METERS

Is It Profitable and Practical to Have Accurate Meters, Sensitive to Low Flows?.....LaVerne Trentlage Jul 1940 **32** 1107
A 100 Per Cent Meterization Program.....Everitt Robbins Jul 1941 **33** 1218
Survey of Meter Maintenance Practice.....A. P. Kuranz Aug 1941 **33** 1381
Meter Settings. Indiana Section Committee Report..... Oct 1941 **33** 1666
Tentative Specifications for Cold Water Meters—Displacement Type. Dec 1941 **33** *Following page* 2226
Meter Maintenance Practice.....A. P. Kuranz Jan 1942 **34** 117
Comprehensive Survey of Large Meters in Nashville R. L. Lawrence Jr. and Allan R. Sharp Jan 1942 **34** 121
Testing Small Meters in San Francisco.....George W. Pracy May 1942 **34** 712
Emergency Alternate Provisions for Tentative Specifications for Cold Water Meters—Displacement Type—7M.1-T..... Dec 1942 **34** 1914
Installation of Water Meters.....John L. Ford Jun 1943 **35** 786
How the Meter Division Met Wartime Emergency Conditions in Elgin LaVerne Trentlage Aug 1943 **35** 1002
Reconditioning of Warped Meter Discs.....George C. Sopp Jan 1944 **36** 90
Effect of Approach Piping on the Accuracy of Water Meters F. L. Moullet and H. A. Knudsen Feb 1944 **36** 190
Maintenance and Repair of Meters.....George A. Roden May 1944 **36** 557
Co-operative Meter Reading..... May 1944 **36** 562
Customer Meter Reading Calendar..... Sep 1944 **36** 1002
Benefits of Bi-monthly Meter Reading..... Dec 1944 **36** 1371

PAINTS, PAINTING, MATERIALS PROTECTION

Metal Protective Finishes.....J. A. Meacham Feb 1941 **33** 309
Experimental Studies of Tank Coating Materials.....J. O. Jackson Sep 1941 **33** 1553
Metallizing as a Method of Water Works Maintenance..C. E. Palmer Sep 1942 **34** 1374
A.W.W.A. Tentative Recommended Practice—Repainting Elevated Steel Tanks and Water Storage Tanks—7H.2T..... Jul 1943 **35** 933

PIPE—ASBESTOS-CEMENT, CONCRETE

Tentative Emergency Specifications for Reinforced Concrete Pressure Pipe—7B-T..... Apr 1943 **35** 499
Erratum..... May 1943 **35** 596
Good Practice in Laying Concrete Pipe.....Louis R. Howson Oct 1943 **35** 1258
Experience With Wire-Wound Prestressed Concrete Pressure Pipe in Chicago.....W. W. DeBerard and W. B. Weldon Oct 1943 **35** 1263

PIPE—CAST-IRON

Lining Cast-Iron Mains in Position With Cement Mortar.J. E. Gibson May 1940 **32** 819
Improvements to Wichita Water Supply.....R. E. Lawrence Aug 1940 **32** 1321
Discussion.....W. D. Moore Aug 1940 **32** 1338
Cement Joints for Improved Water Quality
L. J. Alexander and R. M. Ebaugh Apr 1941 **33** 769
Repairing Water Mains in Milwaukee.....Reinhold H. Klebenow Feb 1942 **34** 272

PIPE—GENERAL (See also CONDUITS, DISTRIBUTION SYSTEMS, PIPE LAYING, EXCAVATION AND BACKFILL AND HYDRAULICS)

Pipe Laying Up To Date.....Philip Burgess Oct 1940 **32** 1696
Trends in Coefficients of Large Pressure Pipes....Charles H. Capen Jr. Jan 1941 **33** 1
Errata..... Feb 1941 **33** 364
Pipe Laying Costs of the East Bay Municipal Utility District
Louis L. Farrell Apr 1941 **33** 749
Lowering Cast-Iron Mains Under Pressure.....Harold L. Crane Apr 1941 **33** 764
U. S. Water Supply Practice
A. E. Kelso (Abstracted by Sterling S. Green) Jul 1942 **34** 984
Mechanical Joints for Water Lines.....Elson T. Killam Nov 1943 **35** 1457

PIPE—SERVICE

Ownership and Maintenance of Service Lines and Curb Boxes
William C. Shoemaker Nov 1940 **32** 1848
Maintaining Water Service in Sub-zero Weather..... Elwood Farra Dec 1940 **32** 2060
The Use of Copper and Brass Tubes.....Carter S. Cole Dec 1940 **32** 2071
Inhibition of Lead Corrosion With Sodium Hexametaphosphate
G. B. Hatch Jul 1941 **33** 1179
Substitute and Alternate Materials for Service Pipe.....E. E. Smith Jul 1942 **34** 1042
Studies Relating to Use of Saran for Water Pipes in Buildings and for Service Lines.....F. M. Dawson and A. A. Kalinske Aug 1943 **35** 1058

PIPE—STEEL AND WROUGHT-IRON

Tentative Standard A.W.W.A. Specifications for Riveted Steel Pipe —7A.1	A Section of	Jan	1940	**32**	
Tentative Standard A.W.W.A. Specification for Lock-Bar Pipe—7A.2	A Section of	Jan	1940	**32**	
Tentative Standard A.W.W.A. Specifications for Electric Fusion Welded Steel Water Pipe for Sizes 30 Inches and Over—7A.3	A Section of	Jan	1940	**32**	
Tentative Standard A.W.W.A. Specifications for Coal-Tar Enamel Protective Coatings for Steel Water Pipe of Sizes 30 Inches and Over—7A.5	A Section of	Jan	1940	**32**	
Tentative Standard A.W.W.A. Specifications for Coal-Tar Enamel Protective Coatings for Steel Water Pipe of Sizes of 4½ Inches Outside Diameter up to but not Including 30 Inches—7A.6	A Section of	Jan	1940	**32**	
Tentative Standard A.W.W.A. Specifications for Cement-Mortar Protective Coating for Steel Water Pipe of Sizes 30 Inches and Over —7A.7	A Section of	Jan	1940	**32**	
Tentative Standard A.W.W.A. Specifications for Steel Water Pipe of Sizes of 4 Inches up to but not Including 30 Inches—7A.4	A Section of	Jun	1940	**32**	
New High Pressure Steel Water Supply Line for Colorado Springs	E. L. Mosley	Aug	1940	**32**	1225
Protective Coatings for Steel Water Lines	Deming Bronson	Aug	1940	**32**	1385
Fittings and Specials for Steel Pipe	Russell E. Barnard	Oct	1941	**33**	1751
Steel Siphon Rehabilitation on the Los Angeles Aqueduct	W. W. Hurlbut, Burton S. Grant and H. Arthur Price	Nov	1942	**34**	1635
Tentative Revision of Standard Specifications for Steel Water Pipe of Sizes up to but not Including 30 Inches—7A.4–1941–TR		Apr	1943	**35**	471
Emergency Alternate Provisions to A.W.W.A. Steel Pipe Specifications		Sep	1943	**35**	1238
Outline of Installation Procedure for Steel Water Pipelines	William W. Hurlbut	Oct	1943	**35**	1281
Field Welding of Steel Water Pipe	H. Arthur Price and G. H. Garrett	Oct	1943	**35**	1295
A.W.W.A. Emergency Alternate Provisions for Thicknesses of Steel Pipe		Oct	1943	**35**	1388
Outline of Design for Steel Water Pipelines	Russell E. Barnard	Jan	1944	**36**	23
Fabricated Steel Ring Flanges for Water Pipe Service for Low Pressures and Low Temperatures	H. O. Hill, W. W. Lewis and H. J. Easter	Sep	1944	**36**	968
The Camp Robinson Water Supply Line	W. L. Patterson	Dec	1944	**36**	1323

PIPE COATING AND LINING

Protective Coatings for Steel Water Lines	Deming Bronson	Aug	1940	**32**	1385
The Effect of Internal Pipe Lining on Water Quality	Paul Weir	Sep	1940	**32**	1547
Service Life of Coal-Tar Enamel Protective Coatings	Harry Hayes	Oct	1940	**32**	1705
Concrete Coating for Underground Piping	J. Herman T. McGee	Oct	1940	**32**	1723
The Rehabilitation of Water Mains	Earle S. Hoyt	Nov	1940	**32**	1843
Cement Lining of Water Mains at Akron, Ohio	Wendell R. LaDue	Oct	1941	**33**	1671
Cement Lining of Water Mains at Toledo, Ohio	George N. Schoonmaker	Oct	1941	**33**	1682
Cement Lining of a Water Main at Cincinnati	Carl A. Eberling	Oct	1941	**33**	1693

PIPE COATING AND LINING (Con.)

Reconditioning Water Mains by Cement Lining . . . . . H. Seaver Jones Oct 1941 **33** 1695
Cleaning and Cement Lining Water Mains in Place . . Bruce Harkness Oct 1941 **33** 1700
Mechanical Application of Bituminous Coatings and Linings
Laurance E. Goit Oct 1941 **33** 1723
Cleaning and Lining With Bitumastic Enamel . . . . . J. M. Kamps Oct 1941 **33** 1763
Steel Siphon Rehabilitation on the Los Angeles Aqueduct
W. W. Hurlbut, Burton S. Grant and H. Arthur Price Nov 1942 **34** 1635
Applications of Metallizing in Water Works Practice . . . . . J. S. Stevens Jan 1943 **35** 53
Acceptance and Use of A.W.W.A. Standard Specifications for Coal-Tar Enamel Protective Coatings for Steel Water Pipe
Deming Bronson and George B. McComb May 1943 **35** 613
Cement Lining of Pipe in Place at New Albany, Ind. . . . . F. A. Schaefer Jun 1943 **35** 781
The Removal, Reconditioning and Installation of 36-Inch Pipe by the Metropolitan Water District of Southern California
Robert B. Diemer Jan 1944 **36** 43
Reconditioning and Protection of Steel Pipelines in Place
L. W. Grayson Jan 1944 **36** 53
Field Removal of Asphalt Lining and Coating From 24-Inch Steel Pipe
Carleton V. Bascom Jan 1944 **36** 59
Specification Requirements for Reconditioning and Strengthening Used 44-Inch Steel Pipe for Permanent Installation . . . . Fred D. Pyle Jan 1944 **36** 62
San Diego's Experience in Cement Lining of Cast-Iron Pipe in Place
Fred A. Rhodes Jan 1944 **36** 64
Discussion . . . . . L. L. Farrell, W. R. McLean and C. W. Heinecke Jan 1944 **36** 69

PIPE LAYING, EXCAVATION AND BACKFILL

Laying Water Mains in Milwaukee . . . . . Herbert Ihling Apr 1942 **34** 595
Methods of Handling Street Excavations . . . . . D. D. Gross Oct 1942 **34** 1545
Standard Schedule for Grading Cities and Towns of the United States With Reference to Their Fire Defenses and Physical Conditions.
National Board of Fire Underwriters . . . . . Oct 1942 **34** *Following page* 1584
Good Practice in Laying Concrete Pipe . . . . . Louis R. Howson Oct 1943 **35** 1258
Outline of Installation Procedure for Steel Water Pipelines
William W. Hurlbut Oct 1943 **35** 1281
Field Welding of Steel Water Pipe . . H. Arthur Price and G. H. Garrett Oct 1943 **35** 1295

PLUMBING, PLUMBING HAZARDS, HOT WATER HEATERS, REFRIGERATORS

Corrosion of Consumers' Plumbing . . . . . Robert R. Ashline Mar 1940 **32** 408
Sanitary Standards for Hotels . . . . . G. E. Arnold Mar 1940 **32** 456
Discussion . . . . . Harry E. Jordan Mar 1940 **32** 464
Investigation of a Water Pressure Tank Explosion . . . . . R. J. Karpen Oct 1940 **32** 1770
Gastro-Enteritis Epidemic in a Large Office Group
J. C. Geiger, A. B. Crowley and C. G. Hyde Jul 1941 **33** 1263
Progress in Plumbing Standardization . . . . . M. W. Cowles Sep 1941 **33** 1565
Bubbling Drinking Fountains
Arthur Parker Hitchens and Oscar A. Ross Feb 1943 **35** 165
Industrial Water Treatment as a Distribution System Hazard
C. K. Calvert Nov 1943 **35** 1399

PLUMBING, PLUMBING HAZARDS, HOT WATER HEATERS, REFRIGERATORS (Con.)

Municipal Regulation and Sanitary Control of Water for Refrigeration and Air Conditioning....Irving Reichman Mar 1944 **36** 334
Water-Borne Outbreak in an Oregon Shipyard
Roy E. Dodson Jr. and A. J. Farrell Apr 1944 **36** 425
The Legal Limits of a Water Supply System ... John H. Murdoch Jr. Aug 1944 **36** 865
Discussion....Boyd A. Bennett Aug 1944 **36** 871
Discussion....J. K. Hoskins Aug 1944 **36** 875
Water Utility Liability....Cornelius T. Waldo Nov 1944 **36** 1265

POSTWAR PLANNING

Canadian Planning for Postwar Reconstruction....W. C. Miller May 1943 **35** 549
Postwar Planning and Possibilities of Reduced Fire Insurance Premiums as a Factor in the Cost of Small Town Water Works Systems
James R. McComas May 1943 **35** 556
Relation of Public Water Supply to the Postwar Program:
The Impact of Postwar Planning on Public Works Programs
Willard Chevalier Jul 1943 **35** 853
Planning the Postwar Water Supply Program....Abel Wolman Jul 1943 **35** 861
Postwar Water Works Materials....W. Victor Weir Aug 1943 **35** 1051
Water and Sewage Works Development. Release of Inter-association Committee on Water and Sewage Works Development.... Sep 1943 **35** 1156
Water Engineering After the War....N. A. F. Rowntree Jan 1944 **36** 12
A Medium Size City Puts on Its Thinking Cap....C. J. Bruce Jan 1944 **36** 76
National Inventory of Needs for Sanitation Facilities Public Water Supply....H. W. Streeter and Ray Raneri Mar 1944 **36** 259
A Checklist for Water Works Executives.... May 1944 **36** 577
The Promotion of Water and Sewage Works Development. E. L. Filby Jul 1944 **36** 725
Planning for Postwar Construction....Wm. N. Carey Jul 1944 **36** 755
State Assistance in Engineering Design and Planning..Adrian Langius Sep 1944 **36** 987
Postwar Planning....John M. Hepler Sep 1944 **36** 989
Postwar Financing in Michigan....Richard A. Sullivan Sep 1944 **36** 991
Postwar Planning of Water Works in New York State..Earl Devendorf Nov 1944 **36** 1247
Postwar Water Works Construction in the Southwest
Homer A. Hunter Nov 1944 **36** 1251
Financing Water Works Improvements in the Pacific Northwest
G. B. Schunke Nov 1944 **36** 1256
What Kind of Public Works?....Henry B. Bleck Dec 1944 **36** 1374

POWER AND PUMPING

Maintenance of Pumps, Motors and Controls....James Brower Mar 1940 **32** 423
Testing Motor-Driven Pumps....R. W. Angus May 1940 **32** 838
Methods of Testing Pumping Equipment....C. J. Des Baillets May 1940 **32** 845
Pumping and Related Equipment Used on the Mono Craters Tunnel Project....S. M. Dunn Aug 1940 **32** 1242
A Program of Equipment Replacement....A. M. Brenneke Oct 1940 **32** 1689
Discussion....George S. Rawlins Oct 1940 **32** 1693
Centrifugal Pump Performance....John Burgess May 1941 **33** 837
Electric Power for Water Pumping Plants....F. I. Fairman May 1941 **33** 844
Maintaining Efficiency of Centrifugal Pumps....George J. Poole May 1941 **33** 849
Pumps for Small Water Works....C. C. Walker May 1941 **33** 853

POWER AND PUMPING (Con.)

Ridding the Distribution System of Pumping Station Noises	S. M. Dunn	Feb	1942	**34**	221
Maintaining Efficiency of Motor-Driven Centrifugal Pumps	L. V. Schuerholz	Feb	1942	**34**	229
Discussion	Stanley E. Kappe	Feb	1942	**34**	233
Effect of Water Waste on Power Consumption	Homer E. Beckwith	Mar	1943	**35**	295
The Storage of Coal	J. F. Barkley	Jun	1943	**35**	825
Pump Maintenance	Harry Stock	May	1944	**36**	553
Cleveland's Mobile Emergency Pump	S. C. Simmermacher	Jun	1944	**36**	658
Corrosion of Well Pumps	T. E. Larson and J. B. Millis	Aug	1944	**36**	886
Discussion	R. E. Coughlan	Aug	1944	**36**	890
Discussion	H. V. Bowlby	Aug	1944	**36**	890
Discussion	R. H. Wasson	Aug	1944	**36**	891
Discussion	Frank P. Macdonald	Aug	1944	**36**	893
Development of Centrifugal Pump Discharge Valve Control at Milwaukee's Riverside Pumping Station	Harrison B. Hoefer	Oct	1944	**36**	1070
The Economics of Electrical Power Pumping	C. A. Richardson	Dec	1944	**36**	1315

PUBLIC RELATIONS (See also MANAGEMENT)

Public Relations and Department Records	H. Buford Fisher	Feb	1940	**32**	265
Publicizing a Good Rate Structure	William A. Peters	Mar	1940	**32**	365
The Kind of Boss I Like	Lorenzo Semple Jr.	Jun	1940	**32**	952
As You Like It—In Public Relations	John C. Mellett	Jun	1940	**32**	958
A Customer Service Bureau	Hal F. Smith	Sep	1940	**32**	1446
Experiences With a Department Newspaper	George S. Bonn	Sep	1940	**32**	1459
Photo-Electric Control for a Drinking Fountain	John E. Kleinhenz	Nov	1940	**32**	1884
A Working Model of a Filtration System	Harold J. Abrahams	Dec	1940	**32**	1975
The Water Superintendent and the Elected Official	Frank D. Livermore	Jan	1941	**33**	84
Erratum		Feb	1941	**33**	364
How to Make a Motion Picture of the Water Works	W. Victor Weir	Feb	1941	**33**	201
Discussion	John E. Kleinhenz	Feb	1941	**33**	208
What an Operator Expects From a Salesman	L. A. Nalefski	Jun	1941	**33**	1069
What a Salesman Can Offer an Operator	Edward E. Alt	Jun	1941	**33**	1076
Public Relations Begin at Home, Or—A.B.V.R. Goldfish	John A. Mellett	Sep	1941	**33**	1481
Maintenance of Centrifugal Pumps	Vance C. Lischer	Feb	1942	**34**	200
Ridding the Distribution System of Pumping Station Noises	S. M. Dunn	Feb	1942	**34**	221
The Public Utility Goes to School	E. J. Rowe	Dec	1943	**35**	1551
Bank Payment of Water Bills		Mar	1944	**36**	357
Developing Consumer Co-operation in Reducing Water Consumption	Harry R. Hall	Apr	1944	**36**	415
Willing Water Takes a Bow in Jackson		Apr	1944	**36**	500
Co-operative Meter Reading		May	1944	**36**	562
Does the Team Know the Score?	Elizabeth McDonnell	Jul	1944	**36**	777
Newspaper Advertisement—Willing Water Flushing Hydrants		Aug	1944	**36**	920
Customer Meter Reading Calendar		Sep	1944	**36**	1002

PUMPING STATIONS

New Pumping Station at Kansas City
R. L. Baldwin and C. S. Timanus Aug 1940 **32** 1341
Toronto's New Purification Plant and Pumping Station
A. U. Sanderson and L. F. Allan Jun 1941 **33** 1011
Protection of Buffalo's Pumping Station Against Service Interruption
Leonard A. Bergman Sep 1941 **33** 1586
Modern Trends in Pumping Station Equipment. Norman G. McDonald Aug 1942 **34** 1241
Efficiency Maintenance in Chicago Pumping Stations
Frank J. McDonough, Paul Lippert and Julian M. Veggeberg Sep 1942 **34** 1405

QUALITY STANDARDS

(See also ANALYSIS AND HEALTH)

The Water Quality Requirements of the Soft Drink Industry
Kennon Mott Sep 1940 **32** 1512
Water Quality Standards. John R. Baylis Oct 1940 **32** 1753
Discussion. Harry E. Jordan Oct 1940 **32** 1767
Rating and Approval of Public Water Supplies. R. P. Farrell Dec 1940 **32** 1986
Discussion. E. Sherman Chase Dec 1940 **32** 1994
Problems and Developments in Michigan. Raymond J. Faust Dec 1940 **32** 2052
Contemplated Revision of the Treasury Drinking Water Standards... Mar 1941 **33** 609
Bacteriological Quality of Water From Small Filtration Plants Treating Surface Waters. Herbert Bosch and Abel Wolman May 1941 **33** 913
Investigating Water Quality in a Distribution System
Albert M. Shannon and William M. Wallace Aug 1941 **33** 1429
Viability and Destruction of the Cysts of *Endameba histolytica*
S. L. Chang and Gordon M. Fair Oct 1941 **33** 1705
Revising the U. S. Standards for Drinking Water Quality
A Symposium
J. K. Hoskins, Charles R. Cox, George D. Norcom and John R. Baylis Oct 1941 **33** 1804
Revising the U. S. Standards for Drinking Water Quality
Discussions
Abel Wolman, J. K. Hoskins, A. M. Buswell, A. A. Hirsch, L. C. Billings, E. Sherman Chase and Ralph E. Noble Dec 1941 **33** 2215
Water Quality Problems in Small Systems. Lawrence H. Cook Jun 1942 **34** 911
Federal Order Concerning Water Supply—Dominion of Canada. Nov 1942 **34** 1739
Discussion. Harry E. Jordan Nov 1942 **34** 1740
Wartime Control of Water Quality. Charles R. Cox Dec 1942 **34** 1755
Public Health Service Drinking Water Standards. Jan 1943 **35** 93
Manual of Recommended Water Sanitation Practice Accompanying United States Public Health Service Drinking Water Standards, 1942. Feb 1943 **35** 135
Erratum. Apr 1943 **35** 454
Domestic Water and Dental Caries. H. Trendley Dean Sep 1943 **35** 1161
Discussion. R. F. Goudey Sep 1943 **35** 1184
Author's Closure. Sep 1943 **35** 1184
The Public Health Significance of Dental Deficiencies. Harold J. Knapp Sep 1943 **35** 1187
A Program of Treatment of Public Water Supply to Correct Fluoride Deficiency. David B. Ast Sep 1943 **35** 1191
What Are the Responsibilities of Public Water Supply Officials in the Correction of Dental Deficiencies. Abel Wolman Sep 1943 **35** 1198

QUALITY STANDARDS (Con.)

The Need for Practical Standards.....R. F. Goudey Nov 1943 **35** 1405
The U. S. Public Health Service Drinking Water Standards
F. H. Waring, G. D. Norcom, R. F. Goudey, C. K. Calvert, C. R. Cox and J. K. Hoskins Nov 1943 **35** 1409
Canadian Water Quality Standards.....Norman J. Howard Dec 1943 **35** 1585
Emergency Sanitation Standards..... Feb 1944 **36** 213
Sanitation Manual for Public Ground Water Supplies..... May 1944 **36** 501
Report of Conference on Drinking Water and Sanitation Standards... Jul 1944 **36** 781
Interpretation of the Public Health Service Drinking Water Standards Nov 1944 **36** 1267

QUALITY OF WATER—AQUATIC GROWTHS, FISH LIFE

Rubber Rim Whipple Cell for Plankton Counts.....A. A. Hirsch Sep 1940 **32** 1470
Underwater Cutting Tool for Aquatic Plants
B. B. Harris and J. K. G. Silvey Nov 1940 **32** 1883
Two Groups of Flagellated Algae Serving as Indicators of Clean Water
James B. Lackey Jun 1941 **33** 1099
Depth Sampler..... Dec 1941 **33** 2207
Limnological Observations on San Francisco Reservoirs
H. C. Medbery May 1942 **34** 719
Copper Sulfate Dispersion and Settlement.....H. C. Medbery May 1942 **34** 735
Identification of Micro-organisms in Relation to Water Purification
James B. Lackey Oct 1942 **34** 1559
Quality and Quantity of Plankton in the South End of Lake Michigan in 1942.....James B. Lackey Jun 1944 **36** 669
The Bacteria in a Distribution System
Albert M. Shannon and William M. Wallace Dec 1944 **36** 1356

QUALITY OF WATER—BACTERIA/AMOEBA

Importance of Sampling and Studying the Water in the Distribution System.....A. T. Lundberg Apr 1940 **32** 649
Bacterial Depreciation of Water Quality in Distribution Systems
Norman J. Howard Sep 1940 **32** 1501
Water Quality Standards.....John R. Baylis Oct 1940 **32** 1753
Discussion.....Harry E. Jordan Oct 1940 **32** 1767
Should Larger Portions of Water Be Tested for Coliform Bacteria?
Ralph E. Noble Jul 1941 **33** 1242
Chlorine Residual and Bacteriological Quality
Max Levine, Austin Heller and Richard Bender Dec 1942 **34** 1787
Maintenance of Chlorine Residual in the Distribution System
Houston, Tex.....Clyde R. Harvill and J. H. Morgan Dec 1942 **34** 1797
Boonville, Mo.....Major C. Hagar Dec 1942 **34** 1801
Wheeling, W. Va.....Arthur R. Todd Dec 1942 **34** 1805
Relative Resistance of Coliform Organisms and Certain Enteric Pathogens to Excess-Lime Treatment
Elsie Wattie and Cecil W. Chambers Jun 1943 **35** 709
Effect of Chlorination on *Pasteurella tularensis* in Aqueous Suspension
H. B. Foote, William J. Jellison, Edward A. Steinhaus and Glen M. Kohls Jul 1943 **35** 902
The Deterioration of Rubber Products by Micro-organisms
Claude E. ZoBell and Josephine D. Beckwith Apr 1944 **36** 439
Discussion.....Harry E. Jordan Apr 1944 **36** 452

QUALITY OF WATER—CHEMICAL AND PHYSICAL

Outline of the Corrosion Problem in Water Works
George D. Norcom Mar 1940 **32** 401
Water Pollution by Petroleum Oils....Mortimer M. Gibbons Mar 1940 **32** 465
The Effect of Internal Pipe Lining on Water Quality...Paul Weir Sep 1940 **32** 1547
Manganese in the Loch Raven Reservoir
Abel Wolman and Robert B. Stegmaier Jr. Dec 1940 **32** 2015
Use of Softened Colorado River Water for Home Gardens
Oscar C. Magistad May 1941 **33** 883
Fundamentals of Corrosion....G. W. Gleeson Jul 1941 **33** 1249
Study of Solubility of Two Lead Salts in Dilute Solutions With Special Reference to the Lead Hazard in Drinking Water
C. C. Ruchhoft and John F. Kachmar Jan 1942 **34** 85
Chemical Character of the Larger Public Water Supplies in Georgia
William L. Lamar Apr 1942 **34** 505
Chemical Character of Public Water Supplies in Southeastern Florida
S. K. Love and H. A. Swenson Nov 1942 **34** 1624
Calcium Carbonate Saturation Index and Alkalinity Interpretations
T. E. Larson and A. M. Buswell Nov 1942 **34** 1667
Discussion....Harvey F. Ludwig Nov 1942 **34** 1679
Discussion....W. F. Langelier Nov 1942 **34** 1679
Authors' Closure.... Nov 1942 **34** 1683
Scalar Diagram for pH of Calcium Carbonate Equilibrium
A. A. Hirsch May 1943 **35** 594
Erratum.... Jul 1943 **35** 910
The Concentrations of Certain Trace Metals in Drinking Water
Robert A. Kehoe, Jacob Cholak and Edward J. Largent Jun 1944 **36** 637
The Hygienic Significance of the Contamination of Water With Certain Mineral Constituents
Robert A. Kehoe, Jacob Cholak and Edward J. Largent Jun 1944 **36** 645

QUALITY OF WATER—POLLUTION, PROTECTION AND CONTROL

The Ohio River Pollution Survey's Relation to Stream Pollution Problems in West Virginia....E. S. Tisdale Apr 1940 **32** 545
Water Plant Control as Affected by Stream Pollution....I. N. Carter Apr 1940 **32** 576
Bacterial Pollution of the Niagara River
G. E. Symons and R. W. Simpson Sep 1940 **32** 1529
Relation of Waste Disposal to Western Pennsylvania Water Supplies
C. H. Young Nov 1940 **32** 1867
Relation of Willamette Valley Project to Water Supply
John C. H. Lee Apr 1941 **33** 721
Recent Stream Pollution Studies in West Virginia....K. S. Watson Jun 1941 **33** 1085
The Pollution and Emergency Disinfection of Rochester's Water Supply....Earl Devendorf Aug 1941 **33** 1334
Errata.... Sep 1941 **33** 1626
Chromium—A Water and Sewage Problem....D. W. Graham Feb 1943 **35** 159
Contamination of Water Supplies in Limestone Formation
S. P. Kingston Nov 1943 **35** 1450

QUALITY OF WATER—TASTES AND ODORS

Studies on the Accuracy of Threshold Odor Values
Roberts Hulbert and Douglas Feben Nov 1941 **33** 1945
Discussion.....Douglas Feben Nov 1941 **33** 1956
Discussion.....John W. Hassler Nov 1941 **33** 1958
Discussion.....W. A. Helbig Nov 1941 **33** 1963
Discussion.....Neil Kershaw Nov 1941 **33** 1963
The History of Taste and Odor Control.....William W. Hassler Dec 1941 **33** 2124
Accuracy and Application of Threshold Odor Tests
Charles H. Spaulding Jun 1942 **34** 877
Calculation of Threshold Odor.....Harold A. Thomas Jr. Jun 1943 **35** 751
Influence of Various Chemicals on Palatability of Drinking Water
John W. Hassler and Martin Faye Nov 1944 **36** 1185

RADIO COMMUNICATION

Radio Directed Water and Sewer Service.....K. F. Hoefle Dec 1940 **32** 2067
Emergency Radio Communication.....W. Victor Weir Jul 1941 **33** 1166
Discussion.....W. W. Hurlbut Jul 1941 **33** 1173
Application of the Public Water Supply Industry for Radio Channel Allocations..... Dec 1944 **36** 1285

RATES, ASSESSMENTS AND FINANCING

Publicizing a Good Rate Structure.....William A. Peters Mar 1940 **32** 365
Water Rate Structures in American Cities.....E. W. Moke Jun 1940 **32** 961
Special Rates and Free Water Service.....Dale L. Maffitt Sep 1940 **32** 1454
Financing of Extensions at Los Angeles.....E. F. Dandridge Feb 1941 **33** 219
Financial Considerations of Distribution System Extensions
F. R. Berry Jun 1941 **33** 1041
Costs of Distribution System Extensions Beyond Corporate Limits in Northern Indiana.....E. D. Anderson Jun 1941 **33** 1053
Survey of Water Main Extension Policies.....L. A. Jackson Aug 1941 **33** 1357
Water Rate Structures in Canada . . .A. E. Berry and William Storrie Aug 1941 **33** 1389
Special Rates and Free Water Service.....Dale L. Maffitt Oct 1941 **33** 1627
Special Rates for Federal Housing Developments . . . . .Hal F. Smith Oct 1941 **33** 1638
Discussion.....L. G. Lenhardt Oct 1941 **33** 1647
Financing and Accounting of Denver's Water System
George F. Hughes Oct 1941 **33** 1648
Relation of Meter Rates to Distribution System Conditions and Other Factors.....Charles H. Capen Jr. Oct 1941 **33** 1653
Development of a Sound Water Rate Structure...William S. Herbert Mar 1942 **34** 374
Discussion.....Louis E. Ayres Mar 1942 **34** 378
Accounting Organization of the North Jersey Water District
M. M. McLaughlin Mar 1942 **34** 383
Discussion.....J. E. Garratt Mar 1942 **34** 388
How to Make a Small Water Works Self-Sustaining
John M. Holladay Mar 1942 **34** 390
Water Main Extension Policies in Wisconsin.....P. A. Reynolds Apr 1942 **34** 544
Methods of Financing Water Main Extensions in California
Morris S. Jones Apr 1942 **34** 555
Problems and Limitations in the Installation of Water Main Extensions to Suburban Areas.....M. B. Whitaker Apr 1942 **34** 561

RATES, ASSESSMENTS AND FINANCING (Con.)

War and Water Rates.....Reeves Newsom Oct 1942 **34** 1511
Promoting Conservation of Water by Rate Surcharges
Frank C. Amsbary Jr. Oct 1942 **34** 1516
Discussion.....J. J. Doland Oct 1942 **34** 1521
Some Factors Entering Into the Determination of Water Rates
J. P. Schwada and E. F. Tanghe Dec 1943 **35** 1527
How Can a Fair Comparison of Water Rates Be Made?
W. Victor Weir Dec 1943 **35** 1557
Victory Garden Rates and Problems.....C. P. Harnish Feb 1944 **36** 141
Fundamentals of Utility Extension Rules.....E. F. McNaughton Mar 1944 **36** 311
Discussion.....J. S. Longwell Mar 1944 **36** 314
The Ohio Plan for Financing Sewage Works Improvements
Wendell R. LaDue Mar 1944 **36** 323
War Contracts Price Adjustment Board..... Jun 1944 **36** 644
Renegotiation of Water Bills by Federal Agencies..... Aug 1944 **36** 908
A Study of Water Rates in Michigan.....Louis E. Ayres Sep 1944 **36** 996
Modernizing Meter Rates.....Charles H. Capen Oct 1944 **36** 1076
Financing Water Works Improvements in the Pacific Northwest
G. B. Schunke Nov 1944 **36** 1256
Renegotiation of Water Bills..... Dec 1944 **36** 1382

RECARBONATION WITH SOFTENING

(See also TREATMENT, BOILER FEEDWATER)

Development of Submerged Combustion for Recarbonation
Leroy H. Scott Jan 1940 **32** 93
Stabilization of Lime-Softened Water.....Charles P. Hoover Sep 1942 **34** 1425
Discussion.....Daniel H. Rupp Sep 1942 **34** 1445
Discussion.....Owen Rice Sep 1942 **34** 1446

REGULATION OF PUBLIC UTILITIES

Property Records and Valuation.....Reeves Newsom Oct 1940 **32** 1666
Wartime Revision of Water Service Regulation—Illinois Commerce Commission Order..... Nov 1942 **34** 1736
Jurisdiction of the State Corporation Commission...H. Lester Hooker Mar 1944 **36** 284
Depreciation Committee Report—Introductory Statement..... Jun 1944 **36** 615
Summary of Report of Depreciation Committee 1943 NARUC
E. H. Aldrich Jun 1944 **36** 616
Special Report of the Depreciation Committee of the A.W.W.A..... Jun 1944 **36** 621
Dollars and Sense of Depreciation.....Louis R. Howson Aug 1944 **36** 803
Municipal Depreciation Accounting Practices.....N. T. Veatch Aug 1944 **36** 811
Wisconsin's Concept of Water Utility Regulation.....W. F. Whitney Sep 1944 **36** 921

RESERVOIRS—CLEAR WATER, DISTRIBUTION

The Capacity Requirements and Design of Distribution Reservoirs
R. C. Kennedy Nov 1940 **32** 1819
New Type Reservoir at Syracuse.....E. P. Stewart May 1941 **33** 861
Construction of Earth Reservoir Embankments With Road Oil Linings
Duncan A. Blackburn May 1941 **33** 876

RESERVOIRS—IMPOUNDING

Silting of Reservoirs.....L. Standish Hall Jan 1940 **32** 25
Manganese in the Loch Raven Reservoir
Abel Wolman and Robert B. Stegmaier Jr. Dec 1940 **32** 2015
Factors in Control of Reservoir Silting.....Carl B. Brown Jun 1941 **33** 1022
Effect of Storage Reservoir Detritus on Ground Water
T. V. Ackerman and E. J. Lynde Mar 1944 **36** 315

SAFETY PRACTICES (See also MANAGEMENT)

Hazards to Employees in Water Works Plants.....A. A. Soldner Feb 1940 **32** 294
Safety in Water Plants.....V. W. Buys Mar 1943 **35** 317
Safety in Water Main Construction.....Fred Eitel May 1944 **36** 542

SEWERAGE, SEWAGE AND WASTE DISPOSAL

New Law on Water and Sewerage Districts.....William Cheek Jan 1940 **32** 62
Possible Use of Ohio Conservancy Act for Developing and Operating Water and Sewerage Facilities in Metropolitan Areas
F. H. Waring Apr 1940 **32** 570
Sewer Rental Financing.....William Storrie Apr 1940 **32** 625
Some Legal Aspects of Sewage Treatment.....Grover Jones Jan 1942 **34** 53
The Ohio Plan for Financing Sewage Works Improvements
Wendell R. LaDue Mar 1944 **36** 323
Wartime Problems of Jointly Administered Water and Sewage Works
Wendell R. LaDue, James W. Myers Jr.,
John W. Pray and Thos. L. Amiss Oct 1944 **36** 1085

SOFTENING

Water-Softening and Filtration Plant of the Metropolitan Water District of Southern California
James M. Montgomery and William W. Aultman Jan 1940 **32** 1
Observations on Water Softening.....Daniel E. Davis Jan 1940 **32** 85
Discussion.....H. M. Olson Jan 1940 **32** 90
Novel Design Features of the Lansing Water Conditioning Plant
Claud R. Erickson Aug 1940 **32** 1259
Water Softening at Ann Arbor.....Louis E. Ayres Sep 1940 **32** 1587
Operation of the Ann Arbor Softening Plant.....Harry E. McEntee Sep 1940 **32** 1600
What Water Softening Would Do for Wisconsin Cities
Louis R. Howson Jan 1941 **33** 103
Discussion.....H. M. Olson Jan 1941 **33** 119
Lime Recovery From Water Softening Sludges.....Howard J. Sowden Apr 1941 **33** 741
Census of U. S. Municipal Water Softening Plants.....H. M. Olson Dec 1941 **33** 2153
Water Softening Plant for Kansas City.....Melvin P. Hatcher May 1942 **34** 703
Design and Operation of Woodlawn Softening Plant
E. V. Grimshaw and E. F. Twomey Jun 1943 **35** 795
Two New Developments in the Water Conditioning Field
Samuel B. Applebaum Nov 1943 **35** 1472
Developments in Split Treatment Water Softening.....Donald Walker Jun 1944 **36** 675
Recovery of Calcium Carbonate or Lime From Water Softening Sludges
Robert T. Sheen and Herbert B. Lammers Nov 1944 **36** 1145
Calcining Sludge From a Softening Plant.....H. V. Pedersen Nov 1944 **36** 1170

SOFTENING (Con.)

Calcining Sludge From a Water Softening Plant...Charles W. Gordon Nov 1944 **36** 1176
Recalcination of Water Softening Sludge.....Frederick G. Nelson Nov 1944 **36** 1178

SPECIFICATIONS AND STANDARDS

Tentative Standard A.W.W.A. Specifications for Riveted Steel Pipe —7A.1.....A Section of Jan 1940 **32**
Tentative Standard A.W.W.A. Specifications for Lock-Bar Pipe—7A.2 A Section of Jan 1940 **32**
Tentative Standard A.W.W.A. Specifications for Electric Fusion Welded Steel Water Pipe for Sizes 30 Inches and Over—7A.3 A Section of Jan 1940 **32**
Tentative Standard A.W.W.A. Specifications for Coal-Tar Enamel Protective Coatings for Steel Water Pipe of Sizes 30 Inches and Over—7A.5.....A Section of Jan 1940 **32**
Tentative Standard A.W.W.A. Specifications for Coal-Tar Enamel Protective Coatings for Steel Water Pipe of Sizes of 4½ Inches Outside Diameter up to but not Including 30 Inches—7A.6. A Section of Jan 1940 **32**
Tentative Standard A.W.W.A. Specifications for Cement-Mortar Protective Coating for Steel Water Pipe of Sizes 30 Inches and Over —7A.7.....A Section of Jan 1940 **32**
Tentative Standard A.W.W.A. Specifications for Steel Water Pipe of Sizes of 4 Inches up to but not Including 30 Inches—7A.4 A Section of Jun 1940 **32**
Standard Specifications for Fire Hydrants for Ordinary Water Works Service—7F.3.....A Section of Aug 1940 **32**
Tentative Standard Specifications for Elevated Steel Water Tanks, Standpipes and Reservoirs—7H.1.....A Section of Dec 1940 **32**
Tentative Standard Specifications for Sluice Gates—7F.2T A Section of Oct 1941 **33**
Specifications for Filtering Materials. Committee Progress Report Nov 1941 **33** 2021
Tentative Specifications for Cold Water Meters-Displacement Type A Section of Dec 1941 **33**
Tentative Manual of Safe Practice in Water Distribution—7J.1-T.... Jun 1942 **34** 915
Emergency Alternate Specifications for Sulfate of Alumina..... Jul 1942 **34** 1073
American Standard Manhole Frames and Covers..... Jul 1942 **34** 1075
Emergency Alternate Provisions for Tentative Specifications for Cold Water Meters—Displacement Type—7M.1-T..... Dec 1942 **34** 1914
Revisions in Standard Specifications for Elevated Steel Water Tanks, Standpipes and Reservoirs..... Dec 1942 **34** 1915
Modifications of A.W.W.A.-N.E.W.W.A. Standard Specifications for Gate Valves for Ordinary Water Works Service by WPB Order L-252..... Mar 1943 **35** 413
Modifications of A.W.W.A.-N.E.W.W.A. Standard Specifications for Fire Hydrants for Ordinary Water Works Service by WPB Order L-39..... Mar 1943 **35** 418
Tentative Standard Specifications for Filtering Material—5C-T ..... Apr 1943 **35** 455
Tentative Revision of Standard Specifications for Steel Water Pipe of Sizes up to but not Including 30 Inches—7A.4–1941–TR..... Apr 1943 **35** 471
Tentative Emergency Specifications for Reinforced Concrete Pressure Pipe—7B-T..... Apr 1943 **35** 499
Erratum..... May 1943 **35** 596

SPECIFICATIONS AND STANDARDS (Con.)

Tentative Manual of Zeolite Test Procedures—5Z-T		Jun	1943	**35**	721
A.W.W.A. Tentative Recommended Practice—Repainting Elevated Steel Tanks and Water Storage Tanks—7H.2T		Jul	1943	**35**	933
A.W.W.A. Tentative Standardization Procedure		Aug	1943	**35**	1097
Emergency Alternate Provisions to A.W.W.A. Steel Pipe Specifications		Sep	1943	**35**	1238
A.W.W.A. Emergency Alternate Provisions for Thicknesses of Steel Pipe		Oct	1943	**35**	1388

STANDPIPES AND TANKS

Cathodic Protection of Steel Water Tanks	Earl E. Norman	Jul	1940	**32**	1069
Steel Tank Corrosion Prevention	W. C. Mabee	Jul	1940	**32**	1075
Discussion	T. H. Wiggin	Jul	1940	**32**	1077
Gastro-Enteritis Outbreak Traced to Painting of Water Tank	M. S. Campbell	Nov	1940	**32**	1928
Corrosion and Cathodic Protection	G. H. Montillon	Feb	1941	**33**	302
Experiences With Cathodic Protection of Water Tanks	J. Clark Keith	Sep	1941	**33**	1503
Experimental Studies of Tank Coating Materials	J. O. Jackson	Sep	1941	**33**	1553
Maintenance and Protection of Elevated Water Tanks	H. F. Stearns	Jan	1942	**34**	59
Maintenance of Elevated Tanks and Standpipes	Charles J. Leary	Jan	1942	**34**	63
Madison's New Watersphere	L. A. Smith	Apr	1942	**34**	601
Good and Bad Practices in Tank Maintenance	Walker B. Davis	Oct	1942	**34**	1552
Revisions in Standard Specifications for Elevated Steel Water Tanks, Standpipes and Reservoirs		Dec	1942	**34**	1915
A.W.W.A. Tentative Recommended Practice—Repainting Elevated Steel Tanks and Water Storage Tanks—7H.2T		Jul	1943	**35**	933
Importance of the Distribution System	Louis R. Howson	Dec	1943	**35**	1517
Battling the Tank Repair Racket	J. Grant Frye	Dec	1943	**35**	1574

STERILIZATION—CHLORINATION, EXCESS LIME, OZONE, ULTRA-VIOLET RAY, COPPER SULFATE

Additions and Changes at Fredericksburg	Roland J. Leveque	Apr	1940	**32**	641
Sterilization of New Mains at Springfield, Ill.	S. T. Anderson	Apr	1940	**32**	645
Photo-Cell Control of Water Chlorination	J. H. Harrington	May	1940	**32**	859
Break-Point Chlorination at Anderson	P. C. Laux	Jun	1940	**32**	1027
Control of Iron and Sulfur Organisms by Super-chlorination and De-chlorination	Louis J. Alexander	Jul	1940	**32**	1137
Super-chlorination at Ottumwa, Iowa	Horace A. Brown	Jul	1940	**32**	1147
Treatment with Copper Sulfate, Chlorine and Ammonia	C. K. Calvert	Jul	1940	**32**	1155
Super-chlorination With Ferrous Sulfate De-chlorination.	Walter Strockbine	Jul	1940	**32**	1176
Observations on Break-Point Chlorination	A. E. Griffin	Jul	1940	**32**	1187
Calcium Hypochlorite in Water Purification	John O. Logan and Walter L. Savell	Sep	1940	**32**	1517
Control of Iron Bacteria by Super-chlorination	E. B. Carroll	Jan	1941	**33**	168
Super-chlorination and De-chlorination	Marsden C. Smith and Howard E. Lordley	Feb	1941	**33**	249
Racine Method of Residual Chlorine Determination	John J. McCarthy	Apr	1941	**33**	659
Ozonation at Whiting, Ind.	James F. Bartuska	Nov	1941	**33**	2035
Practical Application of Ammonia-Induced Break-Point Chlorination	Clyde R. Harvill, J. H. Morgan and H. L. Mauzy	Feb	1942	**34**	275

STERILIZATION—CHLORINATION, EXCESS LIME, OZONE, ULTRA-VIOLET RAY, COPPER SULFATE (Con.)

Discussion.....C. K. Calvert Feb 1942 **34** 285
A Bacteriologist Looks at Chlorine.....Stella M. Costigan Mar 1942 **34** 353
Discussion.....J. W. Krasauskas Mar 1942 **34** 361
Control of Chlorination. Committee Progress Report..... Dec 1942 **34** 1782
A Modification of the Flash Color Test to Control Break-Point Chlorination.....Paul C. Laux and J. B. Nickel Dec 1942 **34** 1785
Discussion.....C. K. Calvert Dec 1942 **34** 1786
Chlorine Residual and Bacteriological Quality
Max Levine, Austin Heller and Richard Bender Dec 1942 **34** 1787
Proposed Plan for Water Main Sterilization.....A. N. Heller Feb 1943 **35** 168
Progress Report on Studies of Water Chlorination.....H. W. Streeter Apr 1943 **35** 421
Water Sanitation With Silver.....Alexander Goetz May 1943 **35** 579
Ozone Treatment of Water.....Victor Hann May 1943 **35** 585
Relative Resistance of Coliform Organisms and Certain Enteric Pathogens to Excess-Lime Treatment
Elsie Wattie and Cecil W. Chambers Jun 1943 **35** 709
Effect of Chlorination on *Pasteurella tularensis* in Aqueous Suspension
H. B. Foote, William J. Jellison, Edward A. Steinhaus and Glen M. Kohls Jul 1943 **35** 902
Control of Chlorination.....Committee Report Oct 1943 **35** 1315
A Proposed Mechanism for Break-Point Chlorination.John R. Rossum Nov 1943 **35** 1446
Automatic Residual Chlorine Indicator and Recorder.D. H. Caldwell Jul 1944 **36** 771
Discussion.....C. H. Spaulding Jul 1944 **36** 776
Destruction of Micro-organisms.....Shih Lu Chang Nov 1944 **36** 1192
Chlorination Practices at Four Southern Indiana Water Purification Plants.....C. D. Adams Dec 1944 **36** 1328
Discussion.....Louis D. Alexander Dec 1944 **36** 1340
Discussion.....A. E. Griffin Dec 1944 **36** 1341
The Practical Use of the Ortho-tolidine-Arsenite Test for Residual Chlorine.....F. Wellington Gilcreas and F. J. Hallinan Dec 1944 **36** 1343
Control of Iron and Sulfur Organisms by Super-chlorination and Dechlorination.....Louis J. Alexander Dec 1944 **36** 1349

SUPPLY—GENERAL

The Water Supply System of San Francisco.....Nelson A. Eckart May 1940 **32** 751
Improvements to Wichita Water Supply.....R. E. Lawrence Aug 1940 **32** 1321
Discussion.....W. D. Moore Aug 1940 **32** 1338
Development of Ann Arbor Water Supply.....H. H. Caswell Sep 1940 **32** 1577
Water Supply at Akron..... The Akron Staff Oct 1940 **32** 1775
Development of Public Water Supplies in West Virginia.H. K. Gidley May 1941 **33** 948
Creston, Iowa, Solves Its Water Problem.....Arthur K. Olsen May 1941 **33** 953
Toronto's New Purification Plant and Pumping Station
A. U. Sanderson and L. F. Allan Jun 1941 **33** 1011
Water Supply at Cincinnati.....The Cincinnati Staff Jul 1941 **33** 1199
Operation Problems in the New Wichita Water System..M. E. Rogers Jul 1941 **33** 1233
Development of Houston's Water Supply.....G. L. Fugate Oct 1941 **33** 1768
Discussion.....Louis R. Howson Oct 1941 **33** 1777
Regional Water Supplies.....Abel Wolman Nov 1941 **33** 1875
Discussion.....H. S. Morse Nov 1941 **33** 1893
Discussion.....J. S. Longwell Nov 1941 **33** 1894
Census of U. S. Municipal Water Softening Plants.....H. M. Olson Dec 1941 **33** 2153

SUPPLY—GENERAL (Con.)

Rehabilitation of the Philadelphia Water Works	Seth M. Van Loan	Jan	1942 **34**	107
Discussion	Nathan B. Jacobs	Jan	1942 **34**	114
Comparison of Estimated and Actual Consumption From the Birmingham Industrial Water Supply System	A. Clinton Decker	Apr	1942 **34**	569
Materials Requirements for U. S. Public Water Supply Construction and Maintenance	Harry E. Jordan	May	1942 **34**	737
Supply and Treatment Problems in South Dakota	Everett R. Mathews	May	1942 **34**	749
U. S. Water Supply Practice	A. E. Kelso (Abstracted by Sterling S. Green)	Jul	1942 **34**	984
Water Service in Wartime London	Henry Berry	Sep	1942 **34**	1298
A Summary of Census Data on Water Treatment Plants in the United States	S. R. Weibel	Dec	1942 **34**	1831
A Lazy Man's Water Works	George L. Wood	Mar	1943 **35**	303
Water Supply in Wartime	Robert L. McNamee	Jun	1943 **35**	687
Pioneering by the Paducah Water Works	Louis R. Howson	Jun	1943 **35**	770
Water Works Improvements at Aurora, Ill.	Carl Duy	Jun	1943 **35**	789
A Quarter Century of Development in Cleveland's Water Supply:				
General Development of the System	A. G. Levy	Jul	1943 **35**	869
Progress in Pumps and Pumping Stations	S. C. Simmermacher	Jul	1943 **35**	882
The Baldwin Filtration Plant	L. A. Marshall	Jul	1943 **35**	887
Economical Addition to Cambridge, Mass., Supply	Timothy W. Good	Aug	1943 **35**	983
Kansas City Improvements Meet Wartime Conditions	Kenneth K. King	Aug	1943 **35**	987
Engineering and Water Works Practice	Paul Hansen	Feb	1944 **36**	127
National Inventory of Needs for Sanitation Facilities Public Water Supply	H. W. Streeter and Ray Raneri	Mar	1944 **36**	259
A North Carolina Water Supply in 1766		Mar	1944 **36**	278
Small Water Works for Unincorporated Areas	Garland S. Sydnor	Mar	1944 **36**	290
Water Works Design Under Wartime Conditions	Wylie W. Gillespie	Jun	1944 **36**	662
The London Water Supply	Henry Berry	Jul	1944 **36**	703
A Review of the Cost of Water Works Structures	Charles B. Burdick	Aug	1944 **36**	821
The Design and Construction of the Milwaukee Water Works	Joseph P. Schwada	Oct	1944 **36**	1019
Management and Control of Public Water Supply Services in the Other American Republics	Harold B. Gotaas and Robert D. Mitchell	Oct	1944 **36**	1097
The Research Laboratories of the Melbourne and Metropolitan Board of Works		Oct	1944 **36**	1109

SUPPLY—INDUSTRIAL

Reducing Water Waste in Industrial Plants	Lewis B. Miller	Apr	1944 **36**	420

SUPPLY—MILITARY

Water Supplies for the Army	W. A. Hardenbergh	Jan	1942 **34**	11
Water Supply Development for the Army	Frank V. Ragsdale	Feb	1943 **35**	181
Water Supply Practice in Army Training Centers	Lewis H. Kessler, V. Bruce Sundstrom and Arthur O. Tomek	Aug	1943 **35**	1009
Water Big Factor in Sicily	Ernie Pyle	Oct	1943 **35**	1255
The Finest Drink—Reprinted Editorial		Oct	1943 **35**	1257
Army Post Water Plant Operation in the Seventh Service Command	Chester A. Obma	Apr	1944 **36**	454
The Camp Robinson Water Supply Line	W. L. Patterson	Dec	1944 **36**	1323

SWIMMING POOLS

Swimming Pool Water Treatment....Herbert L. White Jan 1940 **32** 105

TAXATION

Utilities Commodity Tax.... May 1944 **36** 581
Federal Transportation Tax.... Sep 1944 **36** 1005

TREATMENT AND TREATMENT PLANTS

Treatment Records and Their Value....Carl M. Hoskinson Feb 1940 **32** 259
Water Plant Control as Affected by Stream Pollution..I. N. Carter Apr 1940 **32** 576
Active Problems in Water Purification....Paul Hansen Jul 1940 **32** 1118
General Discussion of Water Purification....J. R. Baylis Jul 1940 **32** 1195
Discussion on Water Purification....Norman J. Howard Jul 1940 **32** 1198
Tuning Up the New Milwaukee Filtration Plant...James E. Kerslake Aug 1940 **32** 1310
The World's Largest Filtration Plant....Loran D. Gayton Aug 1940 **32** 1359
Discussion....Arthur E. Gorman Aug 1940 **32** 1374
Author's Closure.... Aug 1940 **32** 1377
Water Treatment and Laboratory Control....Committee Report Sep 1940 **32** 1507
Toronto's New Purification Plant and Pumping Station
A. U. Sanderson and L. F. Allan Jun 1941 **33** 1011
Methods of Water Treatment and Laboratory Control
Committee Report Nov 1941 **33** 2051
Maintenance of Control Equipment in Water Purification Works
Alan A. Wood Feb 1942 **34** 237
Discussion....R. A. McQuade Feb 1942 **34** 242
Supply and Treatment Problems in South Dakota..Everett R. Mathews May 1942 **34** 749
Conservation of Critical Materials in the Design of the South District
Filtration Plant....F. G. Gordon Sep 1942 **34** 1381
Design of the Chemical Building of the South District Filtration Plant
Paul Hansen Sep 1942 **34** 1390
A Summary of Census Data on Water Treatment Plants in the United
States....S. R. Weibel Dec 1942 **34** 1831
Design and Operation Data on Large Rapid Sand Filtration Plants in
in the U. S. and Canada....Eugene A. Hardin Dec 1942 **34** 1847
Experimental Treatment Plant at Miami....A. B. DeWolf Aug 1943 **35** 1085
Women Filter Plant Operators....Robert L. Stewart Nov 1943 **35** 1437
Engineering and Water Works Practice....Paul Hansen Feb 1944 **36** 127
Experiences of a Lady Water Works Chemist....Sara K. Philhower Feb 1944 **36** 198

VALVES

Preparing the Valve System for Emergency Service...Alvin J. Kuecker Dec 1942 **34** 1767
Modifications of A.W.W.A.-N.E.W.W.A. Standard Specifications for
Gate Valves for Ordinary Water Works Service by WPB Order
L-252.... Mar 1943 **35** 413
Development of Tapping and Valve-Inserting Machines
J. Arthur Jensen Jun 1943 **35** 775

WAR MANPOWER

Selective Service Memorandum—Occupational Classification	Jun	1942	**34**	970
Changes in Selective Service Policy Release of July 14, 1942	Aug	1942	**34**	1289
Take a Personnel Inventory Now. Selective Service Advice on Long-Term Personnel Planning	Oct	1942	**34**	1591
War Manpower Developments—Regulation of Enlistment of Men in Federal Posts and War Industry	Nov	1942	**34**	1734
National War Labor Board Letter	Dec	1942	**34**	1925
War Manpower Commission Policy and Manning Tables	Jan	1943	**35**	127
Discharge of Soldiers Over 38 Years of Age	Jan	1943	**35**	133
Selective Service Amendment	Jan	1943	**35**	134
Wartime Distribution of Sanitary Engineers—War Manpower Commission Release	Feb	1943	**35**	265
Occupational Deferment of Water Works Employees—Selective Service Occupational Bulletin No. 9	Mar	1943	**35**	372
WMC Approved List of Essential Occupations	Apr	1943	**35**	528
Recent Selective Service Amendments Relating to Occupational Deferment	Apr	1943	**35**	535
Water Works Manpower and Military Service	May	1943	**35**	647
WMC Regulation No. 4—Restricting Transfer of Workers	May	1943	**35**	647
Revised Selective Service Classifications	May	1943	**35**	649
Procurement and Assignment of Sanitary Engineers—WMC Release	May	1943	**35**	650
The Needs, Functions and Objectives of the Sanitary Engineering Procurement and Assignment Service—C. W. Klassen	May	1943	**35**	651
The A.W.W.A. and Procurement of Sanitary Engineers	May	1943	**35**	653
The Manpower Situation—Harry E. Jordan	Oct	1943	**35**	1393
Water Works Manpower Survey	Dec	1943	**35**	1550
Selective Service Deferment—Registration Critical Occupations	Dec	1943	**35**	1604
Important Supplement Occupational Deferment Ruling	Jan	1944	**36**	122
Occupational Deferment Water Works Employees	Mar	1944	**36**	295
WPB Advice to Employers Regarding Selective Service Procedure	Jun	1944	**36**	690
National Selective Service Outlines New Draft Instructions	Jun	1944	**36**	696
National Selective Service and Reemployment Policies	Jul	1944	**36**	794

WAR PRODUCTION BOARD

Priorities Information—Preference Rating Order P-46	Oct	1941	**33**	1854
Priorities Information—Amendments to Preference Rating Orders	Jan	1942	**34**	168
Priorities Information—New Regulation	Feb	1942	**34**	328
Application for Preference Rating—Form PD-1A	Mar	1942	**34**	464
Priorities Information Amendment to Chlorine Order	Apr	1942	**34**	644
Applications for Project Ratings	Apr	1942	**34**	654
Amendment to Preference Rating Order P-46	Apr	1942	**34**	661
Priorities Information—Conservation Order No. L-41	May	1942	**34**	785
Administrative Letters on Order P-46 Amended	Jun	1942	**34**	959
Emergency Repairs—Notes on Form PD-333	Jun	1942	**34**	964
Procurement of Copper and Alloy-Steel Materials	Jun	1942	**34**	966
End-Use Allocation	Jun	1942	**34**	967
The Production Requirements Plan	Jul	1942	**34**	1126
Amendment to Preference Rating Order P-46	Jul	1942	**34**	1130
Amendment to Preference Rating Order P-46	Aug	1942	**34**	1294
Rebuilding Damaged Buildings	Aug	1942	**34**	1294

WAR PRODUCTION BOARD (Con.)

Current Supply Problems
E. F. Dugger, G. L. Fugate and Marsden C. Smith Sep 1942 **34** 1362
Importance of Salvage to the War Effort....Clayton Grandy Sep 1942 **34** 1367
Conservation of Critical Materials in the Design of the South District Filtration Plant....F. G. Gordon Sep 1942 **34** 1381
Obtaining Higher Priority Ratings.... Sep 1942 **34** 1482
War Production Board—Administrative Letter No. 7.... Nov 1942 **34** 1717
Preference Rating Order P-46 as Amended October 10, 1942.... Nov 1942 **34** 1723
Priorities and the Controlled Materials Plan.... Dec 1942 **34** 1917
Tire Rationing Regulations.... Dec 1942 **34** 1924
Substitute Materials in the Water Works Field....Richard Bennett Jan 1943 **35** 37
War Production Board Regulations for Laboratory Equipment and Materials.... Feb 1943 **35** 257
WPB CMP Regulation 5—Maintenance, Repair and Operating Supplies Mar 1943 **35** 386
WPB Administrative Letter—Preparation of Form CMP-4C, Application for Allotment of Controlled Materials for Construction and Facilities.... Mar 1943 **35** 395
WPB Limitation Order L-252—Valves and Valve Parts.... Mar 1943 **35** 405
Modifications of A.W.W.A.-N.E.W.W.A. Standard Specifications for Gate Valves for Ordinary Water Works Service by WPB Order L-252.... Mar 1943 **35** 413
WPB General Limitation Order L-39 as Amended January 20, 1943—Fire Protective, Signal and Alarm Equipment.... Mar 1943 **35** 414
Modifications of A.W.W.A.-N.E.W.W.A. Standard Specifications for Fire Hydrants for Ordinary Water Works Service by WPB Order L-39.... Mar 1943 **35** 418
WPB Administrative Letter PDL-1721—Orders for Critical Components.... Mar 1943 **35** 419
Decentralization of WPB Activities.... Apr 1943 **35** 537
Revision of Form PD-1A and Filing in WPB Regional Offices.... Apr 1943 **35** 538
Water Works Maintenance Policy as Affected by the WPB Harry E. Jordan Apr 1943 **35** 539
Limitations on the Use of Copper.... Apr 1943 **35** 542
Wartime Problems of Supply, Operation and Design. Louis R. Howson May 1943 **35** 543
Limitation on Purchases of Motors and Generators—WPB Limitation Order L-221.... May 1943 **35** 659
WPB Conservation Order L-41 as Amended April 20, 1943—Construction.... May 1943 **35** 660
WPB Utilities Orders U-1, U-1-d and U-1-e as Amended—Electric, Gas Water and Steam Utilities—Materials.... May 1943 **35** 667
Administrative Letter on Order U-1 as Amended.... May 1943 **35** 667
Order U-1 as Amended April 17, 1943.... May 1943 **35** 670
Administrative Letter on Supplementary Order U-1-d.... May 1943 **35** 682
Supplementary Order U-1-d as Amended March 29, 1943.... May 1943 **35** 684
Administrative Letter on Supplementary Order U-1-e.... May 1943 **35** 685
Supplementary Order U-1-e—Victory Gardens.... May 1943 **35** 686
Water Supply in Wartime....Robert L. McNamee Jun 1943 **35** 687
WPB Order CMP-5 Amended.... Jun 1943 **35** 824
Plans and Policies of the Office of War Utilities....J. A. Krug Jul 1943 **35** 841
Administrative Policies of the Water Division—Office of War Utilities Arthur E. Gorman Jul 1943 **35** 846

WAR PRODUCTION BOARD (Con.)

WPB Administrative Letter OWU-6—Material for Maintenance, Repair and Operating Supplies and for Construction of Essential Facilities	Jul	1943	**35**	974
Application and Extension of Preference Ratings	Jul	1943	**35**	977
Applications for Relief From U-1 Restrictions	Jul	1943	**35**	981
WPB Construction Conservation Order L-41	Aug	1943	**35**	1096
WPB Priorities Regulation No. 3 Amended	Aug	1943	**35**	1096
Copper Redistribution and Recovery—WPB Release No. 4032	Aug	1943	**35**	1138
Emergency Alternate Provisions to A.W.W.A. Steel Pipe Specifications	Sep	1943	**35**	1238
WPB Utilities Order U-1-f	Sep	1943	**35**	1241
WPB Limitation Order L-39 Revised	Sep	1943	**35**	1248
WPB Report on Voluntary Conservation Program for Water Utility Industry—Task Committee of the Water Utility Industry	Sep	1943	**35**	1249
WPB Utilities Orders U-1 and U-1-f as Amended				
Undermaintenance Under U-1	Oct	1943	**35**	1371
Instructions Re: Utilities Order U-1	Oct	1943	**35**	1372
Utilities Order U-1 as Amended September 24, 1943	Oct	1943	**35**	1375
Effect of Amendment of Order U-1-f	Oct	1943	**35**	1383
Supplementary Utilities Order U-1-f as Amended September 30, 1943	Oct	1943	**35**	1383
Copper Water Tubing—WPB Direction 30 (as Amended September 21, 1943) to CMP Regulation 1	Oct	1943	**35**	1386
A.W.W.A. Emergency Alternate Provisions for Thicknesses of Steel Pipe	Oct	1943	**35**	1388
Coal for Water Works—Harry E. Jordan	Oct	1943	**35**	1392
Organization of the Water Division of the Office of War Utilities	Nov	1943	**35**	1506
Instructions for Using Form WPB-2774	Nov	1943	**35**	1509
War Production Board Supplementary Utilities Order U-1-h	Dec	1943	**35**	1593
War Production Board Construction Conservation Order L-41 Revised	Dec	1943	**35**	1597
The War Production Board's Policies as Related to West Coast Water Utilities—Arthur E. Gorman	Jan	1944	**36**	32
WPB Administrative Letter OWU Supplementary Utilities Order				
U-1-d	Jan	1944	**36**	117
U-1-f	Jan	1944	**36**	119
Engineering and Water Works Practice—Paul Hansen	Feb	1944	**36**	127
Victory Garden Rates and Problems—C. P. Harnish	Feb	1944	**36**	141
WPB Supplementary Order U-1-e	Feb	1944	**36**	150
WPB Administrative Letter OWU Supplementary Utilities Order U-1	Feb	1944	**36**	238
Order U-1-a	Feb	1944	**36**	250
Order U-1-d	Feb	1944	**36**	251
Order U-1-f	Feb	1944	**36**	251
Order U-1-g	Feb	1944	**36**	253
Order U-1-h	Feb	1944	**36**	253
Copper Limitation Order Amended	Feb	1944	**36**	255
WPB CMP Regulations 5A	Mar	1944	**36**	380
WPB Housing Utilities Standards Amended	Apr	1944	**36**	419
Form WPB-2774 Revised	Apr	1944	**36**	486
WPB Limitation Order L-335	May	1944	**36**	552
WPB U-1 Supplementary Orders	May	1944	**36**	582
War Contracts Price Adjustment Board	Jun	1944	**36**	644
Mobilizing the Utilities for War—Edward Falck	Aug	1944	**36**	838
Program and Policies of Water Division OWU—Arthur E. Gorman	Aug	1944	**36**	850
Revision of Form WPB-2774	Aug	1944	**36**	860

WAR PRODUCTION BOARD (Con.)

Renegotiation of Water Bills by Federal Agencies		Aug	1944	36	908
Federal Transportation Tax		Sep	1944	36	1005
WPB-OWU-U-1 Revisions of August 31, 1944		Oct	1944	36	1123
Administrative Letter to All Utilities—August 31, 1944		Oct	1944	36	1125
Administrative Letter to All Water Utilities—September 1, 1944		Oct	1944	36	1129
Utilities Order U-1 as Amended August 31, 1944		Oct	1944	36	1131
Housing Utilities Standards as Amended August 31, 1944		Oct	1944	36	1139
Supplementary Utilities Order U-1-d as Amended August 31, 1944		Oct	1944	36	1141
Supplementary Utilities Order U-1-e Revocation as of August 31, 1944		Oct	1944	36	1141
Supplementary Utilities Order U-1-f as Amended August 31, 1944		Oct	1944	36	1142
Supplementary Utilities Order U-1-g as Amended August 31, 1944		Oct	1944	36	1143
WPB-OWU-Administrative Letter to All Utilities—October 18, 1944		Nov	1944	36	1284
WPB-OWU-U-1 Revision of November 15, 1944		Dec	1944	36	1379
Renegotiation of Water Bills		Dec	1944	36	1382

WATER RIGHTS

The New River Decision	U. S. Supreme Court	Feb	1941	33	315
Adjudication of Water Rights in the Raymond Basin	C. W. Sopp	Apr	1943	35	429

WATERSHEDS

Protection of Watershed for Syracuse Supply	Arnold F. Gregory	Apr	1940	32	555
Symposium on Recreational Use of Watersheds		Jun	1940	32	1009
Reforestation of Ohio Water Works Properties	T. R. Lathrop	Jul	1941	33	1175

WELLS AND WELL PUMPS

(See also GROUND WATER)

Specifications for Construction of Deep Wells	James C. Harding	Jan	1940	32	65
Standard Specifications for Deep Well Pumps	J. Arthur Carr	Jan	1940	32	72
Control of Water Well Drilling	Lewis S. Finch	Jan	1941	33	138
Cleaning Wells at Parkersburg, W. Va.	Golden Underwood	Jan	1941	33	145
Sanitary Construction and Protection of Wells	H. J. Ongerth	May	1942	34	671
An Engineer's View of Well Drilling Contracts	E. Arthur Bell	May	1942	34	678
Relationship Between the Well Drilling Contractor and the Owner	E. D. Every	May	1942	34	681
Development of Deep Wells by Dynamiting	Ralph E. Milaeger	May	1942	34	684
Discussion	A. P. Kuranz	May	1942	34	689
Experiences in Developing Rock Wells	J. A. Carr	May	1942	34	691
Treating Well Screens With Acid	John Barth	May	1942	34	695
Restoring Well Capacity With Chlorine	E. D. Brown	May	1942	34	698
Industrial Water Treatment as a Distribution System Hazard	C. K. Calvert	Nov	1943	35	1399
Corrosion of Well Pumps	T. E. Larson and J. B. Millis	Aug	1944	36	886
Discussion	R. E. Coughlan	Aug	1944	36	890
Discussion	H. V. Bowlby	Aug	1944	36	890
Discussion	R. H. Wasson	Aug	1944	36	891
Discussion	Frank P. Macdonald	Aug	1944	36	893

ZEOLITES/ION EXCHANGE

Removal of Salts From Water	R. F. Goudey	Mar	1940	**32**	435
Discussion	R. B. Thieme	Mar	1940	**32**	450
Discussion	Harry Burrell	Mar	1940	**32**	452
Discussion	S. B. Applebaum	Mar	1940	**32**	453
Recent Experiences With Carbonaceous Zeolites	S. B. Applebaum	Apr	1940	**32**	583
Zeolite Softening at South Orange, N. J.	Robert Spurr Weston	Feb	1941	**33**	255
Accelerated Tests for Determination of Attrition Loss of Carbonaceous Zeolites	S. J. Broderick and E. S. Hertzog	Jan	1942	**34**	94
Tentative Manual of Zeolite Test Procedures—5Z-T		Jun	1943	**35**	721
Two New Developments in the Water Conditioning Field	Samuel B. Applebaum	Nov	1943	**35**	1472
The Economics of De-ionized Water Supplies	Frank Bachmann	Aug	1944	**36**	876

AUTHOR INDEX

Abrahams, H. J. **32,** 1975
Ackerman, T. V. **36,** 315
Adams, C. D. **36,** 1328
Aldrich, E. H. **32,** 795; **36,** 616; **36,** 832
Alexander, E. F. **33,** 1215
Alexander, L. J. **32,** 371; **32,** 1137; **33,** 769; **36,** 1340; **36,** 1349
Alfke, C. J. **33,** 827; **35,** 1568
Allan, L. F. **33,** 1011
Allen, J. H. **35,** 173; **36,** 1
Alt, E. E. **33,** 1076
Amiss, T. L. **36,** 1085
Amsbary, F. C., Jr. **34,** 1516
Anderson, E. D. **33,** 1053
Anderson, S. T. **32,** 645
Angus, R. W. **32,** 838
Applebaum, S. B. **32,** 453; **32,** 583; **35,** 1472
Arnold, G. E. **32,** 456; **33,** 1327; **36,** 1239
Ashline, R. R. **32,** 408
Ast, D. B. **35,** 1191
Aultman, W. W. **32,** 1
Ayres, L. E. **32,** 1587; **34,** 378; **36,** 996

Bachmann, Frank **36,** 876
Bacon, H. E. **32,** 690
Bahlman, Clarence **33,** 1206
Bailey, W. T. **34,** 487
Baity, H. G. **34,** 513
Baldwin, R. L. **32,** 1341
Banks, William **32,** 1012
Bardwell, R. C. **33,** 1402
Barkley, J. F. **35,** 825
Barnard, R. E. **33,** 1751; **36,** 23
Barrick, M. J. **35,** 81
Barron, J. L. **33,** 701
Barth, John **34,** 695
Bartuska, J. F. **33,** 2035
Bascom, C. V. **36,** 59
Bausher, L. W. **32,** 1784
Baylis, J.R. **32,** 1195; **32,** 1753; **33,** 1824; **34,** 1397
Bays, C. A. **35,** 911
Bechert, C. H. **35,** 929
Beckett, R. C. **35,** 173
Beckwith, H. E. **34,** 1523; **35,** 295; **36,** 965
Beckwith, J. D. **36,** 439
Beckwith, T. D. **33,** 147
Behrman, A. S. **32,** 606
Bell, E. Arthur **34,** 678
Bender, Richard **32,** 1904; **34,** 1787
Bengolea, D. J. **32,** 742
Bennett, B. A. **36,** 871
Bennett, Richard **35,** 37
Bergman, L. A. **33,** 1586
Berry, A. E. **33,** 1389; **36,** 740
Berry, F. R. **33,** 1041
Berry, Henry **34,** 1298; **34,** 1689; **35,** 1005; **36,** 703
Besson, F. S. **34,** 475
Bhoota, B. V. **32,** 1913
Billings, C. H. **34,** 1777
Billings, L. C. **32,** 613; **33,** 2215
Binger, W. D. **34,** 1328
Black, H. H. **36,** 1208
Black, R. V. N. **32,** 1016
Blackburn, D. A. **33,** 876
Blakeley, L. E. **33,** 894
Blankenship, R. L. **33,** 299
Bleck, H. B. **36,** 1374
Blumberg, O. C. **32,** 394
Boekley, F. **32,** 1790
Bonn, G. S. **32,** 1459
Booker, W. H. **35,** 223
Booth, G. W. **36,** 957
Bosch, Herbert **33,** 913
Bowlby, H. V. **36,** 890
Brenneke, A. M. **32,** 1689
Broderick, S. J. **34,** 94
Bronson, Deming **32,** 1385; **35,** 613
Brower, J. **32,** 423
Brown, A. C. **32,** 729
Brown, C. B. **33,** 1022
Brown, E. D. **34,** 698
Brown, H. A. **32,** 1147
Brown, H. H. **34,** 1189; **36,** 1062
Brown, K. W. **32,** 675
Bruce, C. J. **36,** 76
Brush, W. W. **33,** 732
Bubbis, N. S. **34,** 247
Buchanan, E. V. **33,** 1609
Bugbee, Percy **32,** 987
Bunnell, A. E. K. **34,** 823

Burdick, C. B. **34,** 1606; **36,** 821
Burgess, John **33,** 837
Burgess, Philip **32,** 1696
Burrell, H. **32,** 452
Bush, B. S. **35,** 81
Buswell, A. M. **33,** 2215; **34,** 1063; **34,** 1667; **34,** 1683; **35,** 921; **35,** 1303
Buys, V. W. **35,** 317
Byrne, W. S. **34,** 1503; **35,** 1568

Caldwell, D. H. **36,** 771
Caldwell, M. E. **32,** 659
Calvert, C. K. **32,** 1155; **33,** 165; **34,** 285; **34,** 1786; **35,** 1340; **35,** 1399; **35,** 1409
Camp, T. R. **32,** 1913
Campbell, M. S. **32,** 1928
Campion, H. T. **32,** 500
Capen, C. H., Jr. **33,** 1; **33,** 1653; **34,** 523; **34,** 530; **34,** 541; **36,** 901; **36,** 1076
Carey, W. N. **36,** 755
Carl, K. J. **35,** 19
Carr, J. A. **32,** 72; **34,** 691
Carroll, E. B. **33,** 168
Carson, H. Y. **33,** 1800
Carter, I. N. **32,** 576
Caswell, H. H. **32,** 1577
Chamberlin, N. S. **35,** 571; **35,** 1065; **35,** 1205
Chambers, C. W. **35,** 709
Chang, S. L. **33,** 1705; **36,** 1192
Chapin, C. K. **36,** 134
Chase, E. S. **32,** 1737; **32,** 1994; **33,** 2215
Cheek, W. **32,** 62
Chevalier, Willard **33,** 1307; **35,** 853
Cholak, Jacob **36,** 637; **36,** 645
Clark, L. K. **33,** 293
Clouser, L. H. **34,** 367
Cole, C. S. **32,** 2071
Cole, E. S. **34,** 1762
Collins, Arthur **35,** 1146
Colt, R. M. **33,** 1869
Cook, L. H. **34,** 911
Cooper, H. H., Jr. **36,** 169
Costigan, S. M. **34,** 353
Coughlan, R. E. **36,** 890
Cowles, M. W. **32,** 1009; **33,** 1565
Cox, C. R. **33,** 1807; **34,** 847; **34,** 1755; **35,** 1409
Crabill, M. P. **33,** 1221
Crane, H. L. **33,** 764
Cranston, H. H. **36,** 1242
Critchlow, H. T. **32,** 1018; **33,** 1517; **35,** 173; **36,** 1301
Croft, H. P. **32,** 1013
Cross, W. P. **34,** 490
Crowley, A. B. **33,** 1263
Cullen, B. W. **34,** 1210

Dahljelm, I. L. **33,** 286
Dandridge, E. F. **33,** 219
Dappert, A. F. **34,** 189
Darcey, H. J. **35,** 71
Davis, A. R. **32,** 1001; **35,** 1440
Davis, D. E. **32,** 85; **36,** 599
Davis, W. B. **34,** 1552
Dawson, F. M. **35,** 1058
Dean, H. T. **35,** 1161; **35,** 1184
DeBerard, W. W. **35,** 1263
Decker, A. C. **34,** 569
DeMartini, F. E. **33,** 636
Des Baillets, C. J. **32,** 845
Detweiler, J. C. **36,** 463
Devendorf, Earl **33,** 1334; **34,** 1179; **35,** 201 **35,** 1090; **36,** 1247
DeWolf, A. B. **35,** 1085
Diemer, R. B. **36,** 43
Dodd, R. I. **35,** 173
Dodson, R. E., Jr. **36,** 425
Dohe, R. C. **32,** 1997
Doland, J. J. **33,** 234; **34,** 1521
Downer, J. B. **32,** 115
Drake, A. D. **34,** 1743
Dugger, E. F. **34,** 1362
Duhme, R. E. **33,** 1201
Dunlop, E. C. **34,** 1063
Dunn, S. M. **32,** 1242; **34,** 221
Duy, Carl **35,** 789
Dye, J. F. **36,** 895

Easter, H. J. **36,** 968
Eastwood, C. W. **35,** 562
Ebaugh, N. C. **35,** 199
Ebaugh, R. M. **33,** 769
Eberling, C. A. **33,** 1201; **33,** 1693; **35,** 1568
Eckart, N. A. **32,** 751
Eckert, O. E. **32,** 1435
Edwards, M. W. **35,** 88
Edwards, S. E. **32,** 147
Eisenberg, G. M. **34,** 365
Eitel, Fred **36,** 542
Eliassen, Rolf **33,** 926; **33,** 1541; **36,** 563
Elvove, Elias **33,** 2210
Erickson, C. R. **32,** 1259
Erickson, D. L. **32,** 736; **36,** 463; **36,** 1230
Ettinger, M. B. **35,** 299

Evans, D. W. **35,** 30
Evans, S. A. **32,** 431
Every, E. D. **34,** 681

Faber, H. A. **33,** 1319; **34,** 746; **35,** 1341
Fair, G. M. **33,** 1705
Fairman, F. I. **33,** 844
Falck, Edward **36,** 838
Farnsworth, George, Jr. **33,** 224
Farr, F., Jr. **33,** 237
Farra, Elwood **32,** 2060
Farrell, A. J. **36,** 425
Farrell, L. L. **33,** 749; **36,** 69
Farrell, R. P. **32,** 1986
Fasken, J. E. **32,** 487
Faust, R. J. **32,** 2052
Faye, Martin **36,** 1185
Feben, Douglas **32,** 1042; **33,** 1945; **33,** 1956; **35,** 1312
Filby, E. L. **36,** 725
Finch, L. S. **33,** 138
Fisher, H. B. **32,** 265
Foote, H. B. **33,** 611; **33,** 1867; **35,** 902
Ford, B. R. **34,** 585
Ford, J. L. **35,** 786
Ford, J. W. **32,** 247
Fry, J. H. **33,** 625
Frye, J. Grant **35,** 1574
Fugate, G. L. **33,** 1768; **34,** 1362
Fuller, H. U. **34,** 1168

Gallaher, W. U. **32,** 1165
Garratt, J. E. **33,** 832; **34,** 388
Garrett, G. H. **35,** 1295
Gavett, Weston **34,** 524; **35,** 267
Gayton, L. D. **32,** 1359; **32,** 1377
Geiger, J. C. **32,** 2006; **33,** 1263
Georgia, F. R. **34,** 577; **34,** 1055
Gerrard, H. J. **32,** 152
Gettrust, J. S. **32,** 1779
Geupel, L. A. **33,** 1079; **33,** 1362; **34,** 1192; **35,** 227
Gibbons, M. M. **32,** 465; **32,** 1022
Gibson, J. E. **32,** 819
Gidley, A. T. **32,** 1484
Gidley, H. K. **33,** 948
Gilcreas, F. W. **35,** 1201; **36,** 1343
Gillespie, W. W. **36,** 662
Glass, J. R. **34,** 1227; **35,** 1065; **35,** 1205
Gledhill, E. G. B. **33,** 1116
Gleeson, G. W. **33,** 1249
Goetz, Alexander **35,** 579
Goit, L. E. **33,** 1723
Goldsmith, Philip **36,** 563
Good, T. W. **35,** 983
Goodhue, R. F. **33,** 1058
Goodman, A. E. **32,** 1780
Goodrich, R. D. **34,** 1629
Gordon, C. W. **36,** 1176
Gordon, F. G. **34,** 1381
Gore, R. C. **35,** 1303
Gorman, A. E. **32,** 1374; **34,** 1343; **35,** 846; **36,** 32; **36,** 850
Gotaas, H. B. **36,** 1097
Gotschall, J. L. **32,** 1787
Goudey, R. F. **32,** 435; **33,** 391; **33,** 2213; **35,** 1184; **35,** 1405; **35,** 1409
Graham, A. F. **33,** 2192
Graham, D. W. **34,** 589; **35,** 159
Grandy, Clayton **34,** 1367
Grant, B. S. **34,** 1635
Grant, U. S., 3rd **35,** 1139; **35,** 1155
Grassy, R. G. **35,** 439
Grayson, L. W. **36,** 53
Green, C. E. **33,** 644
Green, S. S. **34,** 984
Gregory, A. F. **32,** 555
Griffin, A. E. **32,** 1187; **35,** 571; **36,** 1341
Grimshaw, E. V. **35,** 795
Gross, D. D. **34,** 1545
Grush, D. I. **35,** 900
Gunderson, M. F. **34,** 585

Hagar, M. C. **34,** 1801
Hale, F. E. **34,** 1828
Hall, H. R. **36,** 415
Hall, L. S. **32,** 25
Hallinan, F. J. **36,** 296; **36,** 1343
Halvorson, O. A. **34,** 76
Hann, Victor **35,** 585
Hansen, Paul **32,** 1118; **34,** 1390; **36,** 127
Hanson, R. **32,** 1792
Hardenbergh, W. A. **34,** 11
Hardin, E. A. **34,** 875; **34,** 1847
Harding, J. C. **32,** 65
Harkness, Bruce **33,** 1700
Harnish, C. P. **32,** 247; **36,** 141
Harper, L. E. **32,** 1886
Harrington, J. H. **32,** 859
Harris, B. B. **32,** 1883
Harris, H. A., Jr. **32,** 255
Harrison, L. B. **32,** 593
Harvill, C. R. **34,** 275; **34,** 1797
Hassler, J. W. **33,** 1958; **36,** 1185

Hassler, W. W. **33,** 2124
Hatch, G. B. **33,** 1179
Hatcher, M. P. **34,** 703; **36,** 463
Hatfield, W. D. **33,** 1111
Hay, H. R. **36,** 626
Hayes, Harry **32,** 1705
Hazen, H. J. **32,** 1791
Hazen, Richard **34,** 540
Hedberg, John **34,** 530
Heinecke, C. W. **36,** 69
Helbig, W. A. **33,** 1963
Heller, A. N. **34,** 1787; **35,** 168
Hepler, J. M. **36,** 989
Herberger, A. H. **34,** 836
Herbert, W. S. **34,** 374
Hertzog, E. S. **34,** 94
Hickey, J. A. **33,** 1923
Hicks, M. L. **36,** 546
Hill, H. O. **36,** 968
Hinderschied, F. M. **32,** 1783
Hirsch, A. A. **32,** 1470; **33,** 2215; **35,** 288; **35,** 594; **36,** 1365
Hitchens, A. P. **35,** 165
Hochlerner, Tobias **33,** 689
Hoefer, H. B. **36,** 1070
Hoefle, K. F. **32,** 2067
Hoffman, L. J. **32,** 1798
Hoffman, M. F. **33,** 1214
Hogle, George **32,** 1797
Holladay, J. M. **34,** 390
Holloway, E. L. **35,** 701
Hooker, H. L. **36,** 284
Hoover, C. P. **34,** 1425
Hoover, J. E. **33,** 1861
Hopkins, E. S. **32,** 141; **32,** 147
Hoppe, T. C. **33,** 1589
Hoskins, J. K. **33,** 1804; **33,** 2215; **35,** 1409; **36,** 875
Hoskinson, C. M. **32,** 259
Hostettler, C. O. **32,** 1782
Hotchkiss, H. T. **32,** 136
Houston, J. **32,** 1785
Howard, N. J. **32,** 1198; **32,** 1501; **33,** 1475; **35,** 1585
Howland, W. E. **33,** 237; **36,** 966
Howson, L. R. **33,** 103; **33,** 1161; **33,** 1777; **34,** 793; **35,** 543; **35,** 770; **35,** 1258; **35,** 1517; **36,** 803
Hoyt, E. S. **32,** 1843
Hudson, H. E., Jr. **35,** 1303
Hughes, G. F. **33,** 1648; **34,** 1527
Hulbert, Roberts **32,** 139; **33,** 1945; **34,** 1045
Hunt, G. A. **35,** 65
Hunter, H. A. **35,** 73; **36,** 1251
Hurlbut, W. W. **32,** 907; **33,** 1173; **33,** 1716; **34,** 1169; **34,** 1635; **35,** 1281
Hurst, C. K. **32,** 2038
Hurst, W. D. **34,** 247
Hutson, A. C. **33,** 972
Hyde, C. G. **32,** 2014; **33,** 1263; **35,** 183; **36,** 151

Ihling, Herbert **34,** 595
Inglee, Clinton **32,** 385; **33,** 1786; **34,** 1771
Irving, W. G. **32,** 242
Irwin, J. W. **35,** 1565

Jackson, J. O. **33,** 1553
Jackson, L. A. **33,** 1357; **36,** 928
Jacobs, N. B. **32,** 225; **34,** 114
Jacques, H. L. **32,** 43
Jarvis, L. E. **32,** 1101
Jellison, W. L. **35,** 902
Jensen, J. A. **35,** 775
Jensen, O. K. **34,** 849
Jones, Grover **34,** 53
Jones, H. S. **33,** 1695
Jones, K. K. **32,** 1471
Jones, M. S. **34,** 555
Jordan, H. E. **32,** 464; **32,** 1732; **32,** 1767; **32,** 1940; **33,** 121; **34,** 737; **34,** 1740; **35,** 539; **35,** 1392; **35,** 1393; **36,** 452

Kachmar, J. F. **34,** 85
Kahn, J. M. **35,** 597
Kalinske, A. A. **35,** 1058
Kamps, J. M. **33,** 1763
Kappe, S. E. **34,** 233
Karpen, R. J. **32,** 1770
Kehoe, R. A. **36,** 637; **36,** 645
Keith, J. C. **33,** 1503
Kelso, A. E. **34,** 984
Kennedy, R. C. **32,** 1819
Kershaw, Neil **33,** 1963
Kerslake, J. E. **32,** 1310
Kessler, L. H. **35,** 1009
Killam, E. T. **35,** 1457
King, K. K. **33,** 1373; **34,** 1193; **35,** 987
Kingston, S. P. **35,** 1450
Klassen, C. W. **35,** 651
Klebenow, R. H. **34,** 272
Kleinhenz, J. E. **32,** 1884; **33,** 208
Knapp, H. J. **35,** 1187
Kneale, J. S. **32,** 654

Kneeland, H. C. **32,** 1865
Knox, W. H. **34,** 1357
Knudsen, H. A. **32,** 387; **36,** 190
Kohls, G. M. **35,** 902
Krasauskas, J. W. **34,** 361
Krug, J. A. **35,** 841
Krumbiegel, E. R. **36,** 81
Kuecker, A. J. **34,** 1767
Kunigk, W. A. **33,** 1188
Kuranz, A. P. **33,** 1381; **34,** 117; **34,** 689; **34,** 1538; **36,** 1260

Lackey, J. B. **33,** 1099; **34,** 1559; **36,** 669
LaDue, W. R. **32,** 1777; **33,** 1671; **34,** 1483; **36,** 323; **36,** 734; **36,** 1085; **36,** 1222
Lamar, W. L. **34,** 505
Lammers, H. B. **36,** 1145
Langelier, W. F. **32,** 279; **34,** 335; **34,** 1679
Langius, Adrian **36,** 987
Largent, E. J. **36,** 637; **36,** 645
Larson, T. E. **34,** 1667; **34,** 1683; **35,** 1303; **36,** 886
Lathrop, T. R. **33,** 1175
Laughlin, H. F. **32,** 1191
Lauter, C. J. **34,** 1051
Laux, P. C. **32,** 1027; **34,** 1785
Lawrence, R. L., Jr. **34,** 121
Lawrence, R. E. **32,** 1321
Leary, C. J. **34,** 63
Lee, C. H. **32,** 305
Lee, J. C. H. **33,** 721
Leggette, R. M. **32,** 1857
Lenhardt, L. G. **33,** 1647; **34,** 1196
Leveque, R. J. **32,** 641
Leverin, H. A. **33,** 967
Levine, Max **32,** 1904; **34,** 1787
Levy, A. G. **35,** 869
Lewis, W. W. **36,** 968
Lippert, Paul **34,** 1405
Lischer, V. C. **34,** 200
Livermore, F. D. **33,** 84
Logan, J. O. **32,** 1517
Long, F. H. **36,** 303
Longwell, J. S. **33,** 1894; **33,** 1897; **35,** 309; **36,** 314; **36,** 1224
Lordley, H. E. **33,** 249
Love, S. K. **34,** 490; **34,** 1624
Ludwig, H. F. **34,** 335; **34,** 1679; **36,** 151
Lundberg, A. T. **32,** 649
Lynde, E. J. **36,** 315

Mabee, W. C. **32,** 1075
Macdonald, F. P. **36,** 893
MacDowell, R. F. **32,** 933
MacKall, M. R. **35,** 183
Macnab, I. P. **36,** 743
Macqueen, P. O. **34,** 857
Maffitt, D. L. **32,** 1454; **33,** 1489; **33,** 1627; **34,** 1489; **35,** 1543
Maffitt, M'Kean **35,** 58
Magistad, O. C. **33,** 883
Mallalieu, W. C. **32,** 1014
Mangan, J. W. **33,** 213
Marks, H. C. **34,** 1227
Marshall, L. A. **35,** 887
Marston, F. A. **32,** 1081
Martin, F. W. **32,** 1441
Mathews, E. R. **34,** 749
Mauzy, H. L. **34,** 275
Mayer, E. B. **36,** 86
McCall, G. B. **32,** 147
McCallum, G. E. **35,** 27
McCanlis, A. W. H. **33,** 1116
McCarthy, J. J. **33,** 659
McComas, J. R. **35,** 556
McComb, G. B. **35,** 613
McDonald, N. G. **32,** 661; **34,** 1241
McDonnell, Elizabeth **36,** 777
McDonnell, R. E. **32,** 923
McDonough, F. J. **34,** 1405
McEntee, H. E. **32,** 1600
McGee, J. H. T. **32,** 1723
McHenry, M. J. **34,** 829
McLaughlin, M. J. **35,** 173; **36,** 497
McLaughlin, M. M. **34,** 383
McLean, W. R. **36,** 69
McNamee, R. L. **35,** 687
McNaughton, E. F. **36,** 311
McNutt, P. V. **32,** 719
McQuade, R. A. **34,** 242
Meacham, J. A. **33,** 309
Medbery, H. C. **32,** 687; **34,** 719; **34,** 735
Megregian, Stephen **35,** 1329; **35,** 1342
Meinzer, O. E. **34,** 1595
Mellett, J. C. **32,** 958; **33,** 1481
Milaeger, R. E. **34,** 684
Miller, J. B. **35,** 196
Miller, L. B. **36,** 420
Miller, W. C. **35,** 549
Millis, J. B. **36,** 886
Mitchell, George **32,** 1782
Mitchell, R. D. **36,** 1097
Moke, E. W. **32,** 961

Monie, W. D. **33,** 705
Montgomery, J. M. **32,** 1
Montillon, G. H. **33,** 302
Moore, C. E. **34,** 1880; **36,** 1236
Moore, E. W. **34,** 1415
Moore, R. E., Jr. **33,** 495
Moore, W. A. **35,** 427; **35,** 1329; **35,** 1342
Moore, W. D. **32,** 1338
Morgan, J. H. **34,** 275; **34,** 1797
Morgan, L. S. **33,** 1929
Morris, S. B. **34,** 1615; **35,** 1; **35,** 835
Morse, H. S. **33,** 1893; **34,** 1201
Mosley, E. L. **32,** 1225
Mott, Kennon **32,** 1512
Moullet, F. L. **36,** 190
Murdoch, J. H., Jr. **32,** 1647; **34,** 1186; **36,** 865
Myers, J. W., Jr. **36,** 1085
Myers, W. E. **32,** 1795

Nalefski, L. A. **33,** 1069
Nehin, F. O'B. **34,** 1743
Nelson, F. G. **36,** 1178
Nelson, T. C. **33,** 716
Newsom, Reeves **32,** 795; **32,** 993; **32,** 1666; **33,** 359; **33,** 833; **34,** 1511
Nickel, J. B. **34,** 1785
Niemeyer, H. W. **32,** 1354
Niles, P. B. **36,** 405; **36,** 603
Nixon, R. A. **32,** 912
Noble, R. E. **33,** 1242; **33,** 2215; **34,** 583
Nollen, H. S. **32,** 899
Norcom, G. D. **32,** 401; **33,** 1819; **35,** 1409
Norman, E. E. **32,** 1069
Norton, J. F. **33,** 1497
Nussbaumer, N. L. **36,** 1294

Obma, C. A. **36,** 454
Ogden, W. H. **33,** 2201
Ohrt, Frederick **34,** 1141
Olsen, A. K. **33,** 953
Olsen, L. **32,** 1794
Olson, H. M. **32,** 90; **33,** 119; **33,** 2153
Ongerth, H. J. **34,** 671

Palmer, C. E. **34,** 1374
Patterson, W. L. **36,** 1323
Paul, F. D. **32,** 1788
Pedersen, H. V. **33,** 91; **35,** 999; **36,** 1170
Peters, W. A. **32,** 365
Peterson, O. C. **34,** 37
Philhower, S. K. **36,** 198
Poccard, A. G. **32,** 742
Pomeroy, Richard **32,** 478; **33,** 943
Poole, G. J. **33,** 849
Potter, H. H. **34,** 1173
Powell, W. C. **34,** 56
Powell, William **34,** 1588
Powers, Newton **32,** 621
Pracy, G. W. **34,** 712; **35,** 69
Pray, J. W. **36,** 1085
Price, H. A. **34,** 1635; **35,** 1295
Probst, J. B. **33,** 1591
Pulham, C. J. **33,** 1440
Pyle, Ernie **35,** 1255
Pyle, F. D. **36,** 62

Rafkind, Israel **32,** 221
Ragsdale, F. V. **35,** 181
Raneri, Ray **36,** 259
Rawlins, G. S. **32,** 1693
Rawn, A. M. **36,** 762
Rebsamen, L. M. **34,** 1496
Redding, G. R. **32,** 1097
Rehler, J. E. **32,** 1381
Reichman, Irving **36,** 334
Reiman, W. A. **35,** 77
Reinhardt, Harry **35,** 183
Renner, A. C. **35,** 694
Renzoni, L. S. **32,** 1038
Reynolds, P. A. **34,** 544
Rhodes, F. A. **36,** 64
Rice, Owen **34,** 1446
Richardson, C. A. **36,** 1315
Richetta, J. D. **33,** 618
Richey, Dale **33,** 649
Riddick, T. M. **32,** 121; **32,** 146; **33,** 903; **33,** 908
Riehl, M. L. **33,** 246
Rimmer, J. H. **33,** 1211
Ripple, O. J. **32,** 609
Robbins, Everitt **33,** 1218
Robinson, D. W. **32,** 1853
Roden, G. A. **36,** 557
Rogers, A. H. **32,** 1498
Rogers, M. E. **33,** 1233
Rohan, G. J. **32,** 909
Root, D. A. **32,** 1913
Ross, O. A. **35,** 165
Rossano, August, Jr. **33,** 224
Rossum, J. R. **35,** 1446
Rowe, E. J. **35,** 1551
Rowntree, N. A. F. **36,** 12

MAR 31 1947

Ruchhoft, C. C. **34,** 85; **35,** 299; **35,** 1329; **35,** 1342
Rupp, D. H. **34,** 1445
Russell, A. **32,** 57
Ryznar, J. W. **36,** 472

Sahnd, William **33,** 1210
Sanchis, J. M. **33,** 277
Sanderson, A. U. **33,** 1011
Savell, W. L. **32,** 1517
Schaefer, F. A. **35,** 781
Schmitt, E. A. **34,** 857
Schnabel, W. R. **35,** 993
Schoonmaker, G. N. **33,** 1682
Schott, Stuart **35,** 299
Schuerholz, L. V. **34,** 229
Schunke, G. B. **36,** 1256
Schwada, J. P. **35,** 1527; **36,** 1019
Schwartz, M. C. **34,** 1214
Scott, L. H. **32,** 93
Scott, O. H. **36,** 753
Scott, R. D. **33,** 2018; **34,** 522; **35,** 592
Scott, R. S. **33,** 1790
Scott, W. J. **34,** 1163
Sedgwick, R. M. **34,** 564
Seemann, C. W. **36,** 560
Semple, L., Jr. **32,** 952
Shannon, A. M. **33,** 1429; **36,** 1356
Sharp, A. R. **34,** 121
Sharp, L. B. **32,** 1010
Sheen, R. T. **36,** 1145
Shepherd, R. **32,** 414
Shoemaker, W. C. **32,** 1848
Sidwell, G. R. **35,** 655
Sigworth, E. A. **35,** 1587
Silvey, J. K. G. **32,** 1883
Simmermacher, S. C. **35,** 882; **36,** 658
Simpson, R. W. **32,** 1529
Smith, E. E. **34,** 1042
Smith, F. E. **34,** 1415
Smith, H. F. **32,** 1446; **33,** 1638; **33,** 1926
Smith, L. A. **33,** 97; **34,** 601; **35,** 1492
Smith, M. C. **33,** 249; **34,** 1362
Soldner, A. A. **32,** 294
Sopp, C. W. **35,** 429; **36,** 186
Sopp, G. C. **36,** 90
Sowden, H. J. **33,** 741
Spaulding, C. H. **34,** 877; **36,** 776; **36,** 1208
Specht, J. E. **35,** 568
Stanley, W. E. **32,** 137
Stapley, E. R. **32,** 144
Staub, W. S. **32,** 77
Stearns, H. F. **34,** 59
Stegmaier, R. B., Jr. **32,** 2015
Steinhaus, E. A. **35,** 902
Stevens, J. S. **35,** 53
Stevens, J. W. **32,** 1834
Stevens, Loran **32,** 494
Stewart, A. H. **34,** 1685
Stewart, E. P. **33,** 861; **35,** 609
Stewart, R. L. **35,** 1437
Stock, Harry **36,** 553
Stockwell, H. P., Jr. **33,** 1409
Storrie, William **32,** 625; **33,** 1389; **35,** 1487
Streeter, H. W. **35,** 421; **36,** 259
Strockbine, Walter **32,** 1176
Stromquist, W. G. **34,** 367
Stuart, F. E. **35,** 34
Sullivan, R. A. **36,** 991
Sundstrom, V. B. **35,** 1009
Suter, Max **33,** 166; **35,** 921
Swackhamer, R. J. **33,** 671
Swenson, H. A. **34,** 1624
Sydnor, G. S. **36,** 290
Symons, G. E. **32,** 1529

Tanghe, E. F. **35,** 1527
Tarbett, R. E. **34,** 1385
Taylor, D. M. **32,** 98
Taylor, D. R. **34,** 1
Taylor, G. R. **35,** 87
Thieme, R. B. **32,** 450
Thomas, D. S. **33,** 1866
Thomas, F. B. **34,** 1533
Thomas, H. A., Jr. **34,** 572; **35,** 751
Thomas, N. A. **32,** 1183
Thompson, L. N. **32,** 1677
Thompson, Nelson **33,** 1779
Thompson, R. E. **36,** 163
Thrasher, W. E. **33,** 680
Timanus, C. S. **32,** 1341
Tisdale, E. S. **32,** 545
Todd, A. R. **34,** 1805
Tolman, S. L. **34,** 404
Tomek, A. O. **35,** 1009
Trax, E. C. **32,** 1495
Trelles, R. A. **32,** 742
Trentlage, LaVerne **32,** 1107; **35,** 1002
Turner, H. G. **36,** 431
Twomey, E. F. **35,** 795

Underwood, Golden **33,** 145

Van Brunt, J. K. **33,** 755
Van Dusen, Dana **35,** 1568
Van Loan, S. M. **34,** 107
Van Norman, H. A. **33,** 1596
Veatch, N. T. **36,** 811
Veggeberg, J. M. **34,** 1405

Wagenhals, H. H. **35,** 609
Waldo, C. T. **36,** 1265
Walker, C. C. **33,** 853
Walker, Donald **36,** 675
Wallace, W. M. **33,** 1429; **36,** 1356
Wallene, F. O. **32,** 945
Waring, F. H. **32,** 570; **35,** 1409
Wasson, R. H. **36,** 891
Watkins, W. W. **32,** 1896
Wattie, Elsie **35,** 709
Watson, K. S. **33,** 1085
Weber, G. R. **32,** 1904
Weibel, S. R. **34,** 1831
Weigand, Herman **32,** 1528
Weir, Paul **32,** 1547
Weir, W. V. **33,** 201; **33,** 1166; **34,** 1205; **35,** 1051; **35,** 1557; **36,** 463
Weldon, W. B. **35,** 1263
Wells, Bert **34,** 1035
Weston, R. S. **32,** 1484; **33,** 255
Whitaker, M. B. **34,** 561
White, H. L. **32,** 105
Whitney, W. F. **36,** 921
Wiese, A. C. **35,** 1303
Wiggin, T. H. **32,** 1077
Wilber, C. P. **32,** 1024
Wildsmith, A. C. **34,** 179
Wilson, P. D. **34,** 402
Wolman, Abel **32,** 2015; **33,** 913; **33,** 1875; **33,** 2215; **34,** 979; **35,** 861; **35,** 1198
Wood, A. A. **34,** 237
Wood, G. L. **35,** 303
Wood, W. H. **33,** 1440
Wyse, J. H. **35,** 232

Young, C. H. **33,** 1929; **32,** 1867

ZoBell, C. E. **36,** 439

SUBJECT INDEX—TOPICS

A.W.W.A.—AUDIT OF ASSOCIATION FUNDS AND REPORT OF SECRETARY 7
" —CONSTITUTIONS 7
" —GENERAL 7
" —REPORTS OF COMMITTEES 7
ACCOUNTING AND RECORDS 9
ACTIVATED CARBON 9
AMMONIA CHLORINE 9
ANALYSIS OF WATER—GENERAL 10
" " " —BACTERIOLOGICAL 10
" " " —CHEMICAL 10
" " " —PHYSICAL/MICROSCOPIC 12
BOILER FEEDWATER 12
CHEMICALS, COAGULATION, MIXING AND SEDIMENTATION 12
CIVILIAN DEFENSE—MUTUAL AID 12
COLOR REMOVAL 15
CONDUITS AND TUNNELS 15
CONSUMPTION, CONSERVATION, WASTE AND LEAKAGE 15
CONTROL AND REMOVAL OF AQUATIC GROWTHS, TASTES AND ODORS. 16
CORROSION (EXTERNAL), ELECTROLYSIS, GROUNDING OF ELECTRICAL LINES 16
CORROSION (INTERNAL), PIPELINE FRICTION, MAIN CLEANING 16
CORROSION PREVENTION 17
COSTS—STATISTICS OF WATER WORKS 18
CROSS-CONNECTIONS 18
DAMS 18
DISTRIBUTION SYSTEMS 18
EDUCATION, LICENSING AND TRAINING 20
FILTRATION 20
FIRES, FIRE PREVENTION AND PROTECTION 21
GROUND WATER—GEOLOGY 21
HEALTH 22
HYDRANTS 22
HYDRAULICS 22
HYDROLOGY, FLOODS, FLOOD CONTROL, WATER RESOURCES, DROUGHTS, IRRIGATION 23
INTAKES 23
IRON AND MANGANESE REMOVAL 23
LEGAL DECISIONS, DAMAGES, ETC. 24
MANAGEMENT, ADMINISTRATIVE PRACTICES, COMMERCIAL PRACTICES AND PERSONNEL ADMINISTRATION 24
METERS 27
PAINTS, PAINTING, MATERIALS PROTECTION 28
PIPE—ASBESTOS-CEMENT, CONCRETE 28
" —CAST-IRON 28
" —GENERAL 28
" —SERVICE 28
" —STEEL AND WROUGHT-IRON 29

PIPE COATING AND LINING..... 29
PIPE LAYING, EXCAVATION AND BACKFILL..... 30
PLUMBING, PLUMBING HAZARDS, HOT WATER HEATERS, REFRIGERATORS..... 30
POSTWAR PLANNING..... 31
POWER AND PUMPING..... 31
PUBLIC RELATIONS..... 32
PUMPING STATIONS..... 33
QUALITY STANDARDS..... 33
QUALITY OF WATER—AQUATIC GROWTHS, FISH LIFE..... 34
" " " —BACTERIA/AMOEBA..... 34
" " " —CHEMICAL AND PHYSICAL..... 35
" " " —POLLUTION, PROTECTION AND CONTROL..... 35
" " " —TASTES AND ODORS..... 36
RADIO COMMUNICATION..... 36
RATES, ASSESSMENTS AND FINANCING..... 36
RECARBONATION WITH SOFTENING..... 37
REGULATION OF PUBLIC UTILITIES..... 37
RESERVOIRS—CLEAR WATER, DISTRIBUTION..... 37
" —IMPOUNDING..... 38
SAFETY PRACTICES..... 38
SEWERAGE, SEWAGE AND WASTE DISPOSAL..... 38
SOFTENING..... 38
SPECIFICATIONS AND STANDARDS..... 39
STANDPIPES AND TANKS..... 40
STERILIZATION—CHLORINATION, EXCESS LIME, OZONE, ULTRA-VIOLET RAY, COPPER SULFATE..... 40
SUPPLY—GENERAL..... 41
" —INDUSTRIAL..... 42
" —MILITARY..... 42
SWIMMING POOLS..... 43
TAXATION..... 43
TREATMENT AND TREATMENT PLANTS..... 43
VALVES..... 43
WAR MANPOWER..... 44
WAR PRODUCTION BOARD..... 44
WATER RIGHTS..... 47
WATERSHEDS..... 47
WELLS AND WELL PUMPS..... 47
ZEOLITES/ION EXCHANGE..... 48

transportation in general not applicable to public util. fleets due to sound maint. programs. Doubtful that WPB will provide many trucks this year as armed services come first, and factories must work to capac. to meet their orders. ODT rehabilitation program will supply replacement motors, rear axles or other parts which will extend vehicle use for 3 or 4 more years. Under this new order operators of 25 or more vehicles entitled to get without priority rating or any restrictions, one motor, one transmission and one rear axle for each vehicle owned. Old motor may be removed and exchanged for rebuilt motor. Under program 137,000 motors, 8000 trans. and 3800 rear axles will be built. Ford, Chevrolet and General Motors expected to participate strongly, but mfrs. of larger motors will be reluctant to enter program unless orders placed early. Replacement parts situation improved some with exception of cylinder heads, crankshafts, and gears which are still in demand by army. Parts now made of improved materials and WPB has agreed to set aside for civilian production 5% of manpower hours used in mfr. of parts. Most of production of vehicles this year in medium- and heavy-duty class, with which army replacing lighter equip., so little, if any, will be available for public util. fleets. Army suggests use of their discarded lighter vehicles but this not advisable as they are expensive to operate and maint. and have been abused. Synthetic rubber tires will be available and in passenger car size will give good service if given good care; however, larger tires for trucks not as satisfactory. Overloading of synthetic truck tires very harmful; they do not dissipate heat and have ignited, causing fires and destroying both truck and cargo. Some fleet operators run trucks through trough of water 200 to 300′ long at end of run to cool tires. Low mileage from poor grade of gas now available necessitates request for larger allotment. First postwar trucks manufactured may not be best investment, so do not rush to purchase them.—*H. J. Chapton.*

Saving Metals to Hurry Victory. A. E. HOLDEN. The Driller **17:** 6: 7 (June '43). Many metal shortages creating delays and making replacement parts unobtainable, launched new service called metallizing, "metal spraying" process for rebuilding worn surfaces on crankshafts, pistons, transmission shafts and other wearing surfaces including well drilling and water system equip. Highly specialized service managed by competent automotive jobbers and machine shops with trained knowledge of metals and their successful application, available in almost any sizable city. All kinds of shafts, impellers, centrifugal, boiler feed and reciprocating pumps successfully metallized. Costs vary according to part, metal and subsequent machining, but price worth it when new parts unobtainable. Metallizing not a cure-all.—*Ralph E. Noble.*

Means for Conserving Labor and Materials, Including the Adoption of Substitute Noncritical Materials. G. E. MARTIN *et al.* Am. Ry. Engr. Assn. **45:** 441: 64 (Nov. '43). Salvaged and substitute material should be used wherever possible. Man-hours should be conserved by good transportation and communication service for repairmen. Work should be carefully planned and anticipated requirements ordered well in advance.—*R. C. Bardwell.*

Electric Pumping Will Save Critical Materials. C. R. KNOWLES. Ry. Eng. & Maint. **40:** 2: 131 (Feb. '44). Extension and interconnection of elec. power lines has increased availability and dependability of this source of power for railway water stations. Critical materials saved by less wt. of motor-driven centrifugal units and automatic control conserves labor. Coal and oil saved, as well as coal cars or oil tank cars in which serious shortage exists.—*R. C. Bardwell.*

The Use of Alumino Ferric in the Field for the Treatment of Water Containing Colloids. S. KNIGHT. J. Roy. Army Med. Corps (Br.) **82:** 2: 38 (Feb. '44). Water from natural sources frequently contains colloidal particles which pass through std. army metal filters even when these are aided by Kieselguhr, so that filtrates turbid and colored. Prelim. coagulation of these colloids by means of alumino ferric prior to filtration will provide clear water, but this method has hitherto been employed only where settlement in tanks possible. Methods here described for using alumino-ferric coagulation with both Mobile Water Purifier, Mk. II, and with unit app. Expts. with mobile purifier demonstrated that by adding between 1 and 2 gpg. of alumino ferric to water by means of Filtraider device, together with Kieselguhr, which is normally added in this way on suction side of pump, entirely satisfactory filtrate can be

obtained with waters which ordinarily yield turbid, colored filtrate.—*B.H.*

Water Service Men Are Finding Ways Around Problems. A. B. PIERCE. Ry. Eng. & Maint. **40:** 4: 356 (Apr. '44). Curtailment in availability of materials and equip. has resulted in railroads salvaging many old units. Heavy increase in traffic caused by movement of war supplies has required new water stations and enlargement of many old supplies. Pipeline efficiencies have been increased by cleaning and many new wells installed. Troop train movements have required new drinking water facilities. Curtailment by WPB in qual. of alum and amt. of chestnut extract used in water treatment has not affected railroad water supplies seriously as yet.—*R. C. Bardwell.*

Reflections on the Gages of the Portland Water District Showing Water Pressure During Blackouts. F. J. RENY. J. Me. Water Utils. Assn. **19:** 117 (Sept. '43). During 3 successive blackouts Dist. water use decreased approx. 5 mgd. in 20 min., accompanied by 2–3 lb. increased pressure. No explanation other than actual decreased consumption during blackout.—*Ralph E. Noble.*

DAM CONSTRUCTION AND MAINTENANCE

Earth Dams—Their Design and Causes of Some Failures. MILTON G. SPEEDIE. Surveyor (Br.) **103:** 99 (Mar. 3, '44). Essential requirements of earth dam: (1) Sufficient height and top width against overtopping and wave wash. (2) Materials suitable for purpose. (3) Dam and foundation must be sufficiently impermeable. (4) Veloc. of water percolating through bank and foundation must be low enough to insure that no fine soil particles removed. (5) Profile must be such that materials of embankment and foundation stable under most unfavorable combination of shear characteristics and pore pressure that may be encountered. Following design procedure suggested: (1) Make thorough survey of materials (a) in foundation and (b) in vicinity of site and available for new constr. (2) Select one or more trial cross-sections and zonings of materials. (3) Exam. trial designs for (a) seepage loss and safety against piping and (b) stability of embankment and foundation. (4) Det. final cross-section after consideration of characteristics of various alternatives considered and cost of each. (5) Carry out model tests to check seepage and stress conditions, and to assist in prepg. constr. program. Three basic types of earth dams are: Type A, composed entirely of one material except for surface protection against erosion; Type B has materials symmetrically zoned; Type C has materials non-symmetrically zoned. Foundation materials must be examd. in their natural condition. During constr. fill material will be excavated, transported, spread and compacted. Necessary to det. properties soil will exhibit after this treatment. Necessary top width remains matter for judgment. Amt. of freeboard usually detd. from wave height considerations. Deg. of impermeability depends on value of water stored and dimensions of embankment. Essential to design structure so that seepage gradient will be well below "flotation" value at points where seepage water will issue from soil mass. Earth dam stability largely governed by hydrostatic pressure of fluid—air and water—in voids of soil mass. These pressures may be produced by: (1) compaction equip. during constr.; (2) superimposed weight of soil mass during consolidation period and; (3) seepage flow through soil mass. Lack of adequate spillway caused greatest number of failures. Only few failures attributed to insufficient stability of embankment or its foundation. Failure of structures in recent years caused by weak foundations in large proportion of cases. Low height of dam does not warrant taking risks. History has shown that greatest number of failures occur in relatively low dams.—*H. E. Babbitt.*

San Roque Dam, Argentina. ANON. The Engr. (Br.) **177:** 509 (June 30, '44). San Roque Dam located on River Primero, near Cordoba in Argentina. River subject, particularly in late spring, to heavy floods, while at other times of year drought prevails. Dam is concrete gravity structure, slightly curved in plan and has height above river bed of about 50 m. Reservoir will have area of 1650 ha. and vol. of about 200 cu. hectometers at normal storage level. Catchment amts. to 1350 sq.km. Bell-mouthed spillway can discharge 230 cu.m. per sec. at top water level into reservoir.—*H. E. Babbitt.*

German Dams Attacked Successfully. JOSEPH D. LEWIN. Eng. News-Rec. **130:** 890

(June 17, '43). During night of May 16–17, 11 of 19 attacking planes succeeded in breaching Moehne and Eder Dams in Western Germany with 65 tons of explosives. Exact damage not known but photos reveal gap 250′ long and 42′ deep in crest of Moehne Dam and breach approx. 200′ long and of unknown depth in Eder Dam. Both dams curved gravity type structures located in Rothhaar Mts. in Ruhr Dist. and forming reservoirs among largest in Germany. Timing of attack with respect to hydrologic cycle perfect, as in avg. yr. reservoirs full by May 15. Photos show Moehne Reservoir to have been full. Details given of dams and ests. made of probable damage. Estd. that only 70% more mines used than theoretically necessary, indicating very exact bombing. Believed that greater part of stored water released and estd. that max. discharge from breached Moehne Dam about 172,500 cfs. and from Eder Dam about 125,000 cfs. If reports true that Ruhr Valley below Moehne flooded for 60 mi., avg. depth of water about 3′. Will be repercussions in shortage of water to more than 250 municipalities, several hydro plants and navigation canals. Several other dams in Germany mentioned as suitable targets for attack.—*R. E. Thompson.*

The Block Eary Dam, Isle of Man. T. N. C. BULMAN. Wtr. & Wtr. Eng. (Br.) **46:** 461 (Nov. '43). Purpose of dam to impound water for supply to north of Isle of Man. 3 methods of water supply reviewed: (1) gravitational, (2) from river and (3) underground. Consideration of available gathering grounds directed choice to valley site adopted. Site favored constr. of concrete or masonry dam, not more than about 50′ in height, forming reservoir of 11 bil.gal. (Imp.) capac. Hills of slate traversed by quartz. At north end of dam rock hard and compact with no obvious cracking. At southern end rock chunky in character with many cracks and visible bedding planes. Catchment area approx. 1040 acres with approx. avg. annual rainfall of 55″. Top water level of dam 606 O.D. (Ordinance Datum) and allowance made for max. flood of 600 cfs. Nature of site most suitable for mass concrete dam. Height from stream bed to spillway crest approx. 50′ and max. thickness 43′10″. Overall length 208′ 8″. Spillway length 30′. Little earth to be excavated, site mostly rock on surface. Foundations, particularly in way of tongue (cutoff) trench, after excavation drilled and grouted but usually found that holes took no water under pressure of 80 psi. and so took no grout. Concrete shot down chute from mixer and allowed to be rather wet with water-cement ratio of 0.7. It took 20 days for reservoir to fill. No wet patches appeared on downstream face. At southern end, where qual. of rock was suspect, one small leak appeared. Leakage already dropped to 1000 gal. (Imp.) per day.—*H. E. Babbitt.*

Pressure and Consolidation Measurements at a Western Earth-Fill Dam. ELLIS L. ARMSTRONG. Civ. Eng. **12:** 682 (Dec. '42). Dam typically zoned rolled earth-fill type, having center section of impervious sandy-clay material with supporting upstream and downstream sections of stable comparatively semi-pervious materials increasing in coarseness toward outer slopes. Max. height of 235′ above bedrock, length at crest of about 1300′ and contains little less than 3 million cu.yd. of earth and rock materials. Between small closely packed particles that make up embankment, are inter-connected pore spaces which permit flow of air and water through materials. As embankment consolidates and as reservoir fills and empties, air and water exerts pressures on surfaces of pore spaces. This "pore" pressure very materially affects stability of dam. Piezometer apparatus installed in dam to measure this pressure during constr. and during later operation of reservoir. From data obtained, extent of satn., percolation stream lines and stability of embankment can be detd. during both constr. and operation. Five settlement measuring systems installed in dam, making total of 123 crossarms. From time each pair of crossarms placed until 4 mo. after embankment completed, consolidation between crossarms showed approx. straight-line variation of from zero at top of embankment to about 3% with 150′ of fill load. Amount of slow long-time consolidation of embankment yet to be detd., as is settlement effect, if any, of satn. by water from reservoir. —*H. E. Babbitt.*